A STUDY TO ASSESS THE EFFECT OF POMEGRANATE SKIN DECOCTION ON DIARRHOEA AND DEHYDRATION AMONG CHILDREN IN SELECTED HOSPITAL, ALAPPUZHA, KERALA.

BY

30083612

A DISSERTATION SUBMITTED TO THE TAMILNADU Dr.M.G.R. MEDICAL UNIVERSITY, CHENNAI, IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF MASTER OF SCIENCE IN NURSING

MARCH – 2010

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CHAPTER – I

INTRODUCTION

"Bitter are the tears of a child:sweeten them
Deep are the thoughts of a child:quiet them
Sharp are the grief of a child:take it from him
Soft is the heart of a child:do not harden it"

- Jawaharlal Nehru

BACKGROUND OF THE STUDY

The child is the most important possession of mankind, most loved and perfect in its innocence. In India, about 43%of population are children. According to the National Policy for children in august 1974, the development of children has been considered as an integral part of national development. The policy recognizes children as the Nations supremely important assets.

Globally children are loved as they have a special place in the lives of the people but a large number of children become a cause of sorrow, because of illness and ultimate death. Children all over the world suffer from diarrhoeal disease, but in developing countries like India and China, it may have potential life threatening health hazards and leading cause of death among children. So the problem of this group needs special care and attention.

Diarrhoea is one of the leading causes of morbidity and mortality in infants and young children. It is most commonly caused by gastrointestinal infections and kills around 4.6 million people, including 2.5 million children, every year. The main cause of death from diarrhoea is

dehydration, which results from the loss of electrolytes in diarrhoeal stools. Cholera and dysentery are severe, sometimes life threatening forms of diarrhoea. The use of clean potable water is an important preventive measure against the disease (Thapar and Sanderson, 2004).

Diarrhoea is the passage of watery stools, usually at least three times in a 24 h period .Acute diarrhoea, which is a common cause of death in developing countries, appears rapidly and may last from five to ten days. Chronic diarrhoea lasts much longer and is the second cause of childhood death in the developing world. Children are more susceptible to the complications of diarrhoea because amount of fluid loss leads to dehydration.

Dehydration is a health condition in which the body lacks sufficient water that is necessary to carry out the vital activities. Babies and young children are more prone to suffer from dehydration than older children. It is due to the fact that young children lose fluid more quickly than others. Some of the common reasons for dehydration in children are low fluid intake, increased sweating, vomiting, diarrhoea or a combination of these conditions (Hockenberry M J, 2007).

The early signs of dehydration in children are increased thirst, lethargy, irritability, restlessness, decreased urine output and dry mouth. In babies, the fontanel appears sunken due to lack of fluid in the body. As the condition progresses, the child may manifest severe symptoms such as reduced pulse rate, blue skin coloration, abdominal pain, bloody stool, sunken eyes, crying without tears, no urine output in 4 hours and weight loss. Based on the statistics of weight loss, the severity of dehydration in children is categorized into three types, such as mild (<5 percent loss of body weight), moderate (5-9 percent loss of body weight) and severe (more than 9 percent loss of body weight) (Kliegman R M.etal2006).

Alternative therapies for diarrhoea

Although the desire to stop a painful attack of diarrhoea may appear to be of paramount importance, it is better to allow the body to flush itself clean of the cause completely, which will usually take about 24 hours.

Different home remedies are available for the treatment of diarrhoea such as carrot juice, pomegranate, blackberry, honey, garlic, orange juice, rice flour, ginger, turmeric etc .Pomegranate skin decoction is commonly used as a drug in Indian traditional medicine for the treatment of diarrhoea. Some of the nutrients that find in these amazing fruits are Polyphenols that help to protect from free radicals, Vitamin C that helps you fight off colds and other infections, and Vitamin K that help the blood coagulate properly. Pomegranate skin extracts are known to have antispasmodic effects, delay gastrointestinal transit, suppress gut motility, stimulate water adsorption or reduce electrolyte secretion. All these activities may explain the benefits of using this in the treatment of diarrhoeal disease (Palombo, 2006).

NEED FOR THE STUDY

One in 12 of the children born in 2001 have died before their fifth birthday .This represents an annual total of 10.8 million childhood deaths, about 70% of which occur in infancy. Child mortality has declined from an estimated 15 million deaths in 1980, but eminently preventable and treatable conditions, such as pneumonia, diarrhoea, malaria, measles, and malnutrition, are still leading killers of children (Bulletin of WHO 2003).

Diarrhoea, which can be corrected through inexpensive and simple means, kills an estimated 1.5 million children each year, (The News International; United Nation, 2009).

Thilagadevi (2007) assessed the determinants of acute diarrhoeal disease among 202 infants admitted in Government hospital, Erode. In this case control study 77 cases who had diarrhoea and 125 controls who had no diarrhoea were selected through purposive sampling

technique and the tool of the study were a semi structured interview schedule. The study revealed that the determinants such as Food and fluids, Fomites, Flies, Fingers and Faeces had significant association with acute diarrhoea. ($p<0.05$)

The World Health Organization (2006) estimated that each year, nearly 2 billion episodes of diarrhoea occur and that they lead to 4.6 million deaths among children under the age of five. However, the incidence of diarrhoea cases have reduced to 3 million due to the introduction of the Diarrhoeal Disease Control Programme in 1980-81.In topical regions,15 to 40% of all deaths among children under 5 yrs old are related to diarrhoea. Since diarrhoeal disease are caused by 20-25 pathogens, vaccination though an attractive disease prevention strategy is not feasible.

Diarrhoea causes dehydration, which kills approximately 2.2 million children every year in India. UNICEF and WHO recommend a regimen of oral rehydration salts (ORS) and zinc to treat diarrhoea. Dehydration resulting from diarrhoea remains a significant cause of death for young children in developing countries. Although Oral Rehydration Solution (ORS) is effective in preventing and treating dehydration, its use in home treatment is not widespread, (UNICEF/WHO joint report 2009).

Diarrhoeal diseases still remains a major public Health problem in Kerala. Morbidity due to Diarrhoea has declined to greater extent during last ten years. During the year 1992, about 772092 cases of Diarrhoea including 42 cholera cases with 74 deaths were reported (incidence rate of 26.1 case per year for 1000 population). During the year 2006 total incidence has come down to 602976 with one death. Environmental factors in Kerala favour the spread of the disease. Faecal contamination of drinking water due to poor sanitation and poor personal hygiene lead to dangerous disease like cholera. Even in the context of Kerala's better Health indices and literacy rate, small outbreaks of these illnesses continue to be reported from vulnerable areas (CDD-ORT Programme report 2008). .

The strength of children to combat diseases is weaker than that of the adults and hence they are unable to tolerate strong medicines. Besides this, at very small age, the child is not able to express his symptoms clearly so it is necessary to take utmost care in choosing remedies for children. Alternative therapies emphasizes on childcare through various home remedies. In order to protect children and their delicate organs mild remedies are prescribed for children. Since these medicines are natural and harmless, they are the obvious choice for treating children (Kim, 2005).

Children with mild to moderate diarrhoea can be cared for easily at home with close supervision and special fluids. Special fluids have been designed to replace water and salts lost during diarrhoea. These are extremely helpful for the home management of mild to moderately severe illness.

Reid SR and Bonadio WA (2004), determined the efficacy of outpatient rapid IV rehydration in correcting dehydration in children with acute gastroenteritis. Each patient received an IV infusion of 20 to 30 ml/kg isotonic crystalloid solution over 1 to 2 hours, followed by the oral administration of 1 to 3 ounces of clear fluid. All patients had improved hydration status after rapid IV rehydration (p=.001). 42 patients (72%) tolerated oral fluids after rapid IV rehydration and were discharged, 16 patients (28%) did not tolerate oral fluids after rapid IV rehydration and were admitted.

Medicinal plants have proven to be an abundant source of biologically active compounds. About 80% of people in developing countries use traditional medicines for their health care, including the treatment of diarrhoea. Continuous usage of traditional medicine by a large proportion of the population in developing countries is largely due to the high cost of Western medications and healthcare. It is therefore important to identify and evaluate the safety and efficacy of available natural medications as alternatives to currently used anti-diarrhoeal drugs (Palombo, 2006).

An Ethno botanical Study of Plants Used for the Treatment of Diarrhoea revealed 17 plant species belonging to 14 families that were frequently used for the treatment of diarrhoea. Decoctions and infusions were the main methods of preparation. The data showed that majority of the remedies were taken orally. Of these plants, five were frequently mentioned and highly recommended by both the traditional healers and rural dwellers. Punica granatum is the best among them. Antidiarrhoeal and antidysenteric properties of medicinal plants were found to be due to the presence of tannins, alkaloids, saponins, flavonoids, steroids and terpenoids
(Appidi J R., 2007)

Jonas W.B..et al (1994) measured the effectiveness of homeopathic medicines with pomegranate ingredients in decreasing the duration of acute diarrhoea in 126 children, 6 months to 5 years of age. The mean number of stools per day over the entire 5-day treatment period was 3.2 for the treatment group and 4.5 for the placebo group ($P = 0.023$). A Kaplan-Meier survival analysis of the duration of diarrhoea, showed an 18.4% greater probability that a child would be free of diarrhoea by day 5 under the treatment ($p = 0.036$).

Subbottina M.D.et al. (2004) measured the effectiveness of pomegranate skin extract for treatment of rotavirus diarrhoea in 40 children ranging in age from 3 months to 7 years. The duration of diarrhoea in the pomegranate skin extract treatment group was 3 days, compared with 5 days in the control group ($p < 0.001$). In the treatment group 8 of 20 (40%) children were diarrhoea-free 48 h after admission to the hospital, compared with 1 of 20 (5%) in the control group ($p< 0.001$).The administration of pomegranate skin extract in controlled doses shortened the duration of rotavirus diarrhoea and decreased the requirement for rehydration solutions.

Natural remedies can be a parent's best friend when it comes to treating children's ailments and upsets. This can be made at home from natural ingredients like herbs, vegetables or fruits. Herbal remedies are very simple and easy, they have no side effects, do not contain any kind of chemicals, which are harmful to health. In addition they are inexpensive too. In fact,

herbs can be particularly safe and effective for children because herbs tend to be so much gentler than pharmaceutical alternatives. They are especially beneficial for small children when they suffer from diarrhoea or colic. Herbal medicines are touted to the public as less toxic and more effective than conventional drugs for various ailments because they are "natural" and their efficacy is based on knowledge gained over thousands of years (Alan D, Woolf MD., 2003).

A variety of clinical studies have been conducted among children with diarrhoea such as studies related to knowledge and practice of mothers regarding the care of children with diarrhoea, influence of demographic, socioeconomic and environmental variables on childhood diarrhoea, risk factors of diarrhoea, effectiveness of structured teaching programme on prevention and treatment of diarrhoea, disposal of faeces and implications of childhood diarrhoea and so on .All these studies conclude that scientific interventions through education demonstration and economic upliftment would alleviate the diarrhoeal disease among children.

Though the government have initiated many health programmes, in order to reduce the mortality related to diarrhoea, like diarrhoeal control programme, still the cases are being reported. With natural remedies children will be chemical free and boost up the immune system without harming the body with side effects

STATEMENT OF THE PROBLEM

A study to assess the effect of pomegranate skin decoction on diarrhoea and dehydration among children in selected hospital, Alappuzha, Kerala.

OBJECTIVES OF THE STUDY

1. To assess diarrhoea before and after administration of pomegranate skin decoction in experimental group.

2. To assess dehydration before and after administration of pomegranate skin decoction in experimental group.
3. To compare mean difference in diarrhoea among children in experimental and control group.
4. To compare mean difference in dehydration among children in experimental and control group.
5. To find the association between the mean difference in diarrhoea and selected factors among children in experimental group.
6. To find the association between the mean difference in dehydration and selected factors among children in experimental group.

HYPOTHESES

H_1 : There will be a significant difference in diarrhoea before and after administration of pomegranate skin decoction in experimental group.

H_2 : There will be a significant difference in dehydration before and after administration of pomegranate skin decoction in experimental group.

H_3 : There will be a significant difference in the mean difference in diarrhoea among children in experimental and control group.

H_4 : There will be a significant difference in the mean difference in dehydration among children in experimental and control group.

H_5 : There will be a significant association between the mean difference in diarrhoea and selected factors among children in experimental group.

H_6 : There will be a significant association between the mean difference in dehydration and selected factors among children in experimental group.

OPERATIONAL DEFINITION

1. Pomegranate Skin Decoction: Decoction prepared from Pomegranate (Punica granatum) skin, which belongs to the family of Punicaceae. 50gms of fresh pomegranate skin is soaked in 800mlof water for one hour, boiled until 200ml and stored. 5ml and 8ml is given twice daily for 1-3yrs and 3-5yrs respectively.

2. Diarrhoea: Frequent passing of watery or loose stool 3 or more times per day. Diarrhoea was assessed by items in the observation /interview schedule. It was measured as diarrhoea score.

3. Dehydration

Dehydration is a health condition in which the body lacks sufficient water that is necessary to carry out the vital activities. It was assessed by items in the observation /interview schedule. It was measured as Dehydration score

4. Children: Refer to 1-5 age group admitted with moderate diarrhoea and dehydration in CBM Homeo Hospital, Alappuzha.

5. Selected Factors: Refer to those factors which are thought to influence the mean difference in diarrhoea and dehydration such as Age ,Sex, Religion ,Type of family, Area of living, Educational status of mother, Employment status of mother , Family income per year, Duration of diarrhoea, Home remedies given, Treatment given, Medication given and Type of oral fluids.

ASSUMPTIONS

1 Pomegranate skin decoction will be acceptable to children.

2 Pomegranate skin decoction will not cause any adverse effect on children.

3 The items in the tool will be adequate to measure diarrhoea and dehydration.

DELIMITATION

The study is delimited to,

- Children who are available in the selected hospital during the period of study.
- Sample selected by non random purposive sampling.

CONCEPTUAL FRAME WORK

Conceptual frame work is an organized phenomena which deals with concepts that are assembled by virtue of their relevance to a common theme.

The present study was aimed at assessing the effect of pomegranate skin decoction on diarrhoea among children. The conceptual frame work for the present study was based upon the Nursing process model (ANA 1991).

1. ASSESSMENT

Assessment is the deliberate and systematic collection of data to determine a clients current and past health status.

In this study assessment include-

- Pre test diarrhoea Score: Diarrhoea assessment score, include colour, consistency, odour, episodes, blood and mucus in stool, duration of diarrhoea and weight loss.
- Pre test dehydration Score: Dehydration assessment score include mental status, thirst, heart rate, quality of pulses, breathing, eyes, tears, mouth and tongue, skin fold, capillary refill, extremities and urine output.
- Selected factors of children : Age, Sex, Religion ,Type of family, Area of living, Educational status of mother, Employment status of mother, Family income per year, Duration of diarrhoea, home remedies given, treatment given, medication given and type of oral fluids .

2. PLANNING

Assessment of data helps in formulating nursing diagnosis, which forms the basis of planning nursing care. Through planning, the nurse determine what needs to be accomplished, in which priority the needs have to be met and how it should be done.

In this study planning includes preparation of pomegranate skin decoction by taking 50 gms of fresh pomegranate skin soaked in 800ml of water for 1hr and boiled until quarter of the volume remained . The decoction was stored in a clean dry bottle.

3. IMPLEMENTATION

During this step individualized nursing care is given to client according to the plan. Intervention are continually modified as needed or seemed necessary by an ongoing nursing assessment of the client response.

Administration of pomegranate skin decoction was done as follows: 5ml (1.25gm) for 1-3 yrs and 8ml (2gm) for 3-5yrs was given twice daily.

4. EVALUATION

The nurse determines the clients progress towards meeting the behavioural outcomes and the success of the nursing intervention.

Evaluation of the diarrhoea and dehydration status was done based on diarrhoea score and dehydration score.

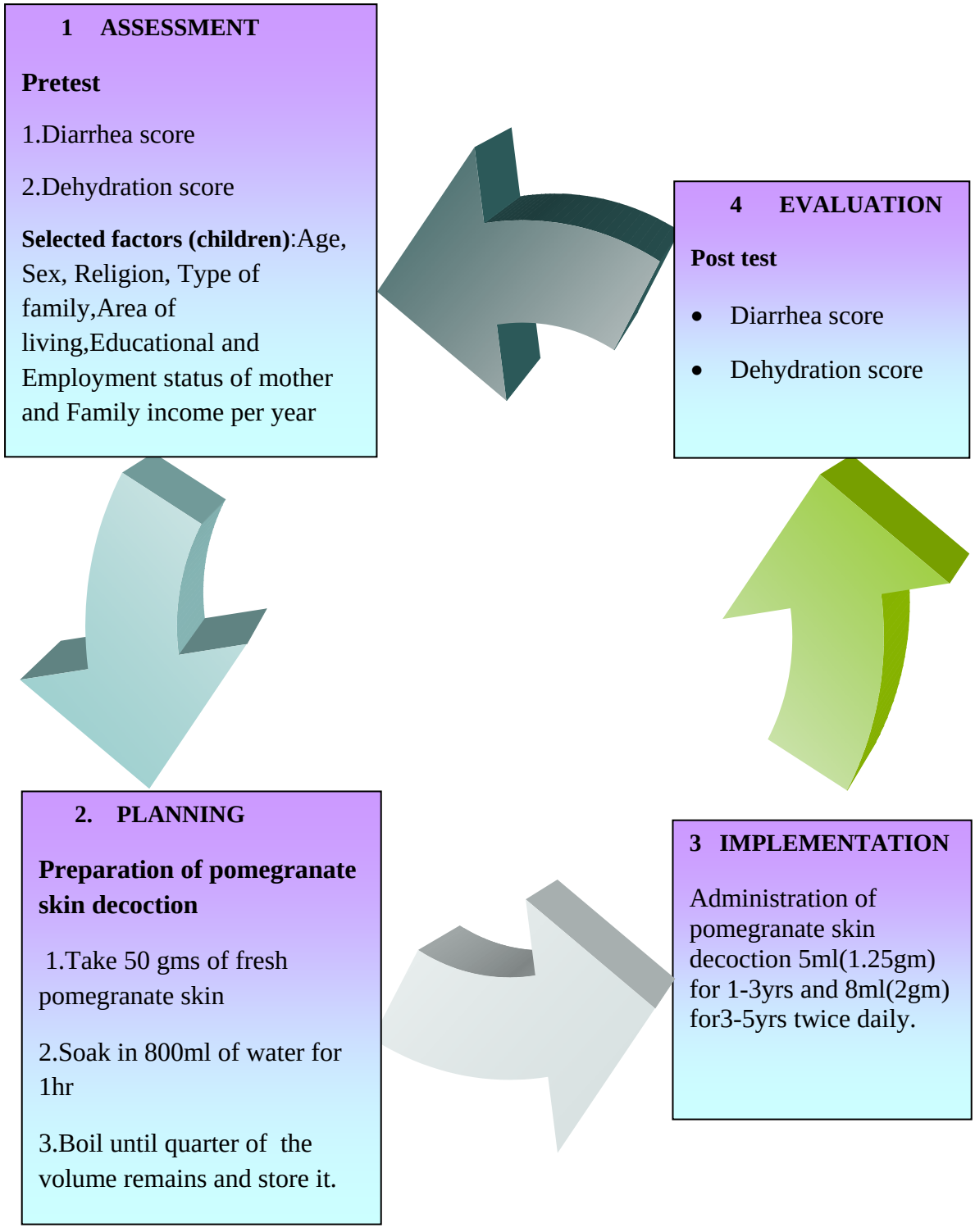

Fig. 1: CONCEPTUAL FRAME WORK BASED ON NURSING PROCESS MODEL (ANA, 1991)

CHAPTER – II

REVIEW OF LITERATURE

A review of literature enables one to get an insight into the various aspects of the problems under the study. This involves the systematic, identification, location, and summary of written materials that contain information on a research problem. .

This chapter deals with literature reviewed on effect of pomegranate skin decoction on diarrhoea under following headings.

I. Studies related to diarrhoea, dehydration and management.
II. Studies related to effect of pomegranate.
III. Studies related to effect of pomegranate on diarrhoea and dehydration.

I. STUDIES RELATED TO DIARRHOEA, DEHYDRATION AND MANAGEMENT

Han, et.al., et al (2007) measured the efficacy of albumin to normal saline (NS) for initial hydration therapy for dehydrated term infants with severe metabolic acidosis due to acute diarrhoea. They randomized 33 infants presenting with moderate-to-severe dehydration and metabolic acidosis into an Albumin group (n=15) and a NS group (n=18). For initial hydration treatment, the albumin group received 5% albumin 10ml|kg, whereas the NS group received NS 10ml|kg. After 3hours of treatment, both groups improved. But there were no differences either in the body weight and weight gain 4 days after treatment or in the length of hospital stay. Albumin was not more effective than NS for initial hydration treatment of dehydrated term infants with metabolic acidosis due to acute diarrhoea.

Robert.E., et.al., (2007) reported that zinc supplementation in young children may be effective in treating severe diarrhoea. In New Delhi, India, 462 children with severe diarrhoea received 20 milligrams a day of zinc supplement along with a vitamin mixture including vitamins A, B, D, and E. An additional 485 children with diarrhoea received a placebo. The parents of dehydrated children in both groups were encouraged to give water and dissolved salts to their children. The risk that diarrhoea would continue on any given treatment day was reduced by 23% in the zinc group. In addition, the frequency of diarrhoea episodes lasting over seven days was reduced by 39 % in the zinc group. The average number of watery stools per day was reduced by 39% with zinc treatment. Zinc supplementation reduced both the intensity and the time span of diarrhoea.

Umapathy.M., (2007) examined the effectiveness of Oral rehydration therapy in association with the dehydration status on 30 children one month to 5yrs with moderate dehydration admitted with acute diarrhoea in Civil hospital Raichur. The conceptual framework was based on modified form of Myra E Levines conversation model and design was one group pretest post test experimental design .Nonprobability purposive sampling was used to select the samples and among the subjects 93.33%were rehydrated within 4hrs. The χ^2 value between maternal education, weight of the child and ORT showed χ^2=7.894 andχ^2 = 6.26 at 5%level of significance. Insignificant relationship was found between ORT and age, sex, and time required for rehydration.

Sartour, et.al., (2006) validated the clinical dehydration scale(CDS) with 4 items such as capillary refill time ,abnormal skin turgor, abnormal respiratory pattern, and mucus membrane.205 children ,aged 1month to 5 yrs admitted with acute gastroenteritis in a tertiary emergency department ,Canada were selected. A triage nurse assessed the scale with nearly 2 minutes. and it was simple to use. The 3 dehydration categories were no dehydration (CDS score of 0), some dehydration (CDS score of 1–4), and moderate/severe dehydration (CDS score of 5–8). The dehydration scores were 0 for 117 children (57%), 1 to 4 for 84 children

(41%), and ≥5 for 5 children (2%). The 3 dehydration categories (none, some, or moderate/severe) were positively associated with the level of stay (none, 245 ± 181 minutes; some, 397 ± 302 minutes; moderate/severe, 501 ± 389 minutes; P < .001). The 3 dehydration categories were positively associated with the proportions of children who received intravenous fluid rehydration (none, 15%; some, 49%; moderate/severe, 80%; P = .001).

Rebbany.G.H., et.al., (2005) measured the therapeutic effects of green banana or pectin in 62 boys, age 5-12 months with persistent diarrhoea. They were randomly given a rice-based diet containing either 250 g/L of cooked green banana (n = 22) or 4 g/kg pectin (n = 19) or the rice-diet alone (control, n = 21), providing 54 kcal/dL daily for 7 days. Stool weight and consistency, frequency of vomiting and purging, and duration of illness were measured. By day 3 post treatment, significantly (P<0.001) more children recovered from diarrhoea receiving pectin or banana than controls (59%, 55%, and 15%, respectively). By day 4, these proportions correspondingly increased to 82%, 78%, and 23%, respectively, the study diet groups being significantly (P<0.001) different than controls. Green banana and pectin significantly (P<0.05) reduced amounts of stool, oral rehydration solution, intravenous fluid, and numbers of vomiting, and diarrhoeal duration. Green banana and pectin are useful in the dietary management of persistent diarrhoea in hospitalized children and may also be useful to treat children at home.

Simakachoron.N., (2005) observed the effect of a lactose-free and a lactose-containing formula in dietary management of acute watery diarrhoea and mild or moderate dehydration in 80 formula-fed male children, aged 3 to 24 months. In this randomized, double-blind clinical trial all children received oral rehydration therapy for the first 4 hours. After appropriate rehydration, they were fed either a lactose-free formula (Dumex Lactose-Free Formula; treatment group, n = 40) or a lactose-containing formula (Dumex Infant Formula; control group, n = 40) in adjunction with oral rehydration solution. In addition, the infants were fed rice gruel as tolerated. Comparisons of duration of diarrhoea, weight gain, vomiting, biochemical changes, stool frequency and weight and unscheduled intravenous fluid were

made. Using survival analysis, the median duration of diarrhoea was significantly shortened by 20.5 hours in the treatment group compared to the control group (77.0 hours in the treatment group vs 97.5 hours in the control group; P = 0.002). Significantly decrease in stool frequency and increase in percent weight gain was seen in the treatment group at 24 hours. Lactose-free formula was shown to be effective in the dietary management of acute childhood diarrhoea. Duration of diarrhoea was shortened, weight gain was better, and stool frequency was less when compared to lactose-containing formula.

Fontaine O. and Gore S.M.,(2004) measured the effects of rice-based oral rehydration salts solution compared with glucose-based oral rehydration salts solution on reduction of stool output and duration of diarrhoea in patients with acute watery diarrhoea. Randomized trials comparing standard World Health Organization oral rehydration solution with an experimental oral rehydration salts solution in which glucose (20 grams per litre) was replaced by 50-80 grams per litre of rice powder, with the electrolytes remaining unchanged. Irrespective of age, people with cholera who were given rice oral rehydration salts solution had substantially lower rates of stool loss than those given oral rehydration salts solution in the first 24 hours. Mean stool outputs in the first 24 hours were lower by 67 ml/kg of body weight (weighted mean difference -67.4, 95% confidence interval -94.3 to -41.0) in children, and by 51 ml/kg of body weight (weighted mean difference -51.1, 95% confidence interval -65.9 to -36.3) in adults. The rate of stool loss in infants and children with acute non-cholera diarrhoea was reduced by only four ml/kg of body weight (weighted mean difference -4.3, 95% confidence interval -9.3 to 0.8). Rice-based oral rehydration appears to be effective in reducing stool output in people with cholera. This effect was not apparent in infants and children with non-cholera diarrhoea.

Friedman, Goldman, Srivastava, Parkin, (2004) developed a clinical dehydration scale for use in children <3 years of age by a Prospective cohort study of 137 children between 1 and 36 months of age who presented with gastroenteritis at the emergency department of the

Hospital for Sick Children, Toronto. Children were weighed and scored for 12 clinical signs, were rehydrated, and then were reweighed and rescored when rehydration was completed. Weight change from pre- to post-rehydration was used to assess criterion validity with independent global assessments of dehydration severity by attending physicians and nurses as measures of construct validity. Formal approaches to item selection and reduction, reliability, discriminatory power, validity, and responsiveness were used. The final dehydration scale consisted of four clinical characteristics: general appearance, eyes, mucous membranes, and tears. The measurement properties were as follows: validity as assessed by Pearson's correlation coefficient was 0.36 to 0.57; reliability as assessed by the intraclass correlation coefficient was 0.77; discriminatory power as assessed by Ferguson's δ was 0.83; and responsiveness to change as assessed by Wilcoxon signed rank test was significant at $P<0.01$. Clinicians and researchers may consider this four-item, 8-point rating scale, developed using formal measurement methodology, as an alternative to scales developed ad hoc

Alcarax.G.M., et.al., (2003) measured the efficacy of a solution containing 50gms/l of plantain flour and 3.5gm/lof sodium chloride for rehydration of 238 children, 5-18 months, with acute diarrhoeal disease in rural Bangladesh.121 children were given WHO ORS (group A) and 117 children were given a plantain based solution(group B). Rehydration was successful in 85.9%in group A and 88% in group B(p=0.634) Rehydration was completed in 5.28hrs(SD 2.99)in group A and in 4.88hrs(SD 2.11)in group B(p=0.132)The mean stool output during rehydration was 8.45 g/kg/hr.(SD 9.72)in group A and 4.69g/kg/hr(SD 4.98)in group B (p=0.00053).Thus the plantain flour based solution proved effective for the treatment of dehydration due to acute diarrhoeal disease and should be considered as an alternative when standard WHO ORS is not available.

Branth, et.al., (2003).observed the immediate and long-term effects of a dietary supplement and micronutrients given to children with persistent diarrhoea during the episode and for 1 wk during convalescence by selecting 603 houses randomly, and children <3 yrs of age with persistent diarrhoea were randomly assigned to either a treatment or a control group.

were identified during weekly household visits. The children in the treatment group were offered home-based dietary treatment consisting of locally available foods and micronutrient supplements. There were 141 episodes of persistent diarrhoea during the study: 70 in the treatment group (in 58 children) and 71 in the control group (in 62 children). During the intervention period (median: 17 d), weight gain in the treatment group exceeded that of the control group by 61.5 g/wk (95% CI: 49.2, 73.8), whereas there was no significant difference in linear growth on the basis of knee-heel length. At a median follow-up period of 6.6 mo after the intervention was stopped, weight gain in the treatment group exceeded that of the control group by 12.5 g/wk (95% CI: 7.7, 17.3); knee-heel length was 7.5 mm/y (4.8, 10.2) greater and total length was 0.65 cm/y (0.11, 1.19) greater in the treatment group.

Bahl.R., et.al, (2002) measured the efficacy of zinc-fortified oral rehydration salts solution (ORS) in comparison to ORS without zinc in 6 to 35month old 1219 urban children with acute diarrhoea not sick enough to be hospitalized. In this double-blind, randomized, controlled trial children were randomly assigned to 3 groups. The first group received a zinc syrup (15 mg zinc to 6 to 11 month old children and 30 mg to 12 to 35 month old children), the second group received zinc premixed with ORS (40 mg/L), and the control children received ORS only. Households were visited twice weekly until recovery. The total number of stools was lower in the zinc-ORS group (rate ratio, 0.83; 95% CI, 0.71-0.96), as was the proportion of children with watery stools (Adjusted odds ratio= 0.61; 95% CI, 0.39-0.95), compared with the control group; there was no significant effect on diarrhoeal duration. ORS intake and proportion of children with vomiting were not significantly different between the zinc-ORS and control groups. The zinc syrup group had lower diarrhoeal duration (relative hazards, 0.89; 95% CI, 0.80-0.99) and total stools (rate ratio, 0.73; 95% CI, 0.70-0.77) than control children. Zinc-ORS was moderately efficacious in reducing the severity of acute diarrhoea without increasing vomiting or reducing ORS intake.

Faruque.A., et.al., (2001) measured the effect of zinc or vitamin supplementation in 684 children, 6 months to 2yrs, with acute watery diarrhoea. Double blind randomized controlled trial with a factorial design was used and the total patients were divided into 3 groups to receive A) vitamin A 4500µg B) 14.2 mg elemental zinc C) placebo mixture for 15 days. Zinc supplementation was associated with a reduced duration of diarrhoea (13%, p=0.03) and markedly reduced rate (43%, p=0.017) of prolonged diarrhoea. Vitamin supplementation was associated with a non significant trend for reduced rate of prolonged diarrhoea (p=0.089). Zinc supplementation had a substantial impact on the rate and duration of diarrhoea in children.

II. STUDIES RELATED TO EFFECT OF POMEGRANATE IN GENERAL.

Duman.D., et.al., (2008) reported that arils from six pomegranate varieties grown in the Mediterranean region of Turkey were tested for their antimicrobial properties by the agar diffusion and minimum inhibitory concentration (MIC) methods against seven bacteria: (Bacillus megaterium, Pseudomonas aeruginosa, Staphylococcus aureus ,Corynebacterium xerosis, Escherichia coli, Enterococcus faecalis, Micrococcus luteus), and three fungi (Kluvyeromyces marxianus, Rhodotorula rubra, Candida albicans). It has been observed that the pomegranate extracts had antimicrobial effect on all microorganisms, giving inhibition zones ranging in size from 13 to 26 mm. The MIC values for active pomegranate extracts ranged between 30 and >90 µg/mL. The results obtained appeared to confirm the antimicrobial potential of the Punica granatum varieties.

Esmaillzadeh.A., (2008) measured the effect of concentrated pomegranate juice (CPJ) consumption on lipid profiles of 22 type II diabetic patients with hyperlipidemia from the Iranian Diabetes Society. Dietary assessment was done for patients and given 40 g CPJ for eight weeks, and on completion anthropometric and blood indices were evaluated. By using Wilcoxon signed-rank test significant reductions were seen in total cholesterol ($p < 0.006$), low-density lipoprotein-cholesterol (LDL-c) ($p < 0.006$), LDL-c/high-density lipoprotein-cholesterol

(HDL-c) ($p < 0.001$), and total cholesterol/HDL-c ($p < 0.001$). However there were no significant changes in serum triacylglycerol and HDL-c concentrations. Anthropometric indices, physical activity level, types and doses of oral hypoglycemic agents and the intake of nutrients and flavonoid-rich foodstuffs did not change during the CPJ consumption period. CPJ consumption could modify heart disease risk factors in these hyperlipidemic patients.

Graham.J., (2008) reported that pomegranate rind is powerfully astringent, hard, granular, brownish-yellow or reddish in colour, and about 1.5 millimeters thick. The rind of the fruit is separated from the seeds and dried to use for medicinal purposes. It is administered in the form of decoction in diarrhoea and dysentery. Pomegranate is symbolic of plenty and very much liked for its cool, refreshing juice and valued for its medicinal properties. It retains its flavor and as such can keep well for over a year if it is properly filtered, bottled and preserved by using 0.1 per cent sodium benzoate.

Jurenka.J., (2008) reported that pomegranate is used in several systems of medicine for a variety of ailments. The synergistic action of the pomegranate constituents appears to be superior to that of single constituents. In the past decade, numerous studies on the antioxidant, anticarcinogenic, and anti-inflammatory properties of pomegranate constituents have been published, focusing on treatment and prevention of cancer, gastro intestinal problems, cardiovascular disease, diabetes, dental conditions, erectile dysfunction, bacterial infections and ultraviolet radiation-induced skin damage. Other potential applications include infant brain ischemia, male infertility, Alzheimer's disease, arthritis, and obesity.

Akhtar, et.al.,(2007) Pomegranate has become a very popular supplement during the last few years, and has been widely featured in the mainstream media. As their bright color suggests, the seed coatings of the pomegranate are packed with antioxidant compounds. The two primary groups of antioxidant compounds found in pomegranates are hydrolyzable tannins and anthocyanins. Hydrolyzable tannins are a group of polyphenolic compounds found in plants

that have previously been "shown to be a potent antioxidant with anti-inflammatory activity." Hydrolyzable tannins include ellagitannins and ellagic acid. Anthocyanins are water plant pigments that give many fruits and berries there red, blue or purple coloration. Their value as potent antioxidants has been widely investigated.

Kasai.K., et.al., (2007) measured the protective and ameliorative effects of ellagic acid-rich pomegranate extract on pigmentation in the skin after ultraviolet ray (UV) irradiation, using 90 female subjects in their 20s to 40s using a double-blind, placebo-controlled trial. Thirteen healthy volunteers per group were randomly assigned to three groups; namely, high dose (200 mg/d ellagic acid), low dose (100 mg/d ellagic acid) and control (0 mg/d ellagic acid: placebo). Each group received the respective test foods for 4 wk. Each subject received a 1.5 MED (minimum erythema dose) of UV irradiation on an inside region of the right upper arm. Luminance (L), melanin and erythema values were measured before the start of the test food intake, and after 1, 2, 3 and 4 wk following the start of the test food intake. Stratified analysis using subjects with a slight sunburn revealed an inhibited decrease of L values compared with the control group at 1, 2 ($p<0.01$, $p<0.03$respectively) and 4 wk ($p<0.05$) after the start of the test food intake in the low-dose group, and at 2 and 3 wk ($p<0.05$) in the high-dose group. Furthermore, the results of questionnaires showed ameliorating tendencies due to the test food, in some items such as "brightness of the face" and "stains and freckles." Pomegranate extract, ingested orally, has an inhibitory effect on a slight pigmentation in the human skin caused by UV irradiation.

Cerda.B., et.al., (2006) observed the effect of antioxidant polyphenol-rich pomegranate juice (PJ) supplementation for 5 weeks on patients with stable chronic obstructive pulmonary disease (COPD). In this randomized, double-blind, placebo-controlled trial a total of 30 patients with stable COPD were randomly distributed in two groups (15 patients each),both groups consumed either 400 ml PJ daily or matched placebo (synthetic orange-flavoured drink) for 5 weeks. Trolox Equivalent Antioxidant Capacity (TEAC) of PJ, blood parameters (14

haematological and 18 serobiochemical), respiratory function variables, bioavailability of PJ polyphenols (plasma and urine) and urinary isoprostane (8-iso-PGF(2alpha)) were evaluated.The daily dose of PJ (containing 2.66 g polyphenols) provided 4 mmol/l TEAC. None of the polyphenols present in PJ were detected in plasma or in urine of volunteers. No differences were found (P > 0.05) between PJ and placebo groups for any of the parameters evaluated (serobiochemical and haematological), urinary 8-iso-PGF (2alpha), respiratory function variables and clinical symptoms of COPD patients. The results suggest that PJ supplementation adds no benefit to the current standard therapy in patients with stable COPD. The high TEAC of PJ cannot be extrapolated in vivo probably due to the metabolism of its polyphenols by the colonic microflora. The understanding of the different bioavailability of dietary polyphenols is critical before claiming any antioxidant-related health benefit.

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III STUDIES RELATED TO EFFECT OF POMEGRANATE ON DIARRHOEA AND DEHYDRATION

Kaur.U, (2008) reported that augmentation of pitta in the body or weak digestive power causes diarrhoea. Improper eating habits, fried food in oil or ghee, meats, vegetables like cauliflower, broccoli, beans, nuts and sweets, milk and citrus fruits and impure foods increase the risk of diarrhoea. Decoction prepared from pomegranate skin is very useful in stopping diarrhoea. To prepare the decoction, take 50 grams of fresh pomegranate skin. Soak it in 800 ml. of water for one hour. Boil until a quarter of the volume remains (200 ml). Store this mixture in a clean, dry bottle. A couple of tablespoons can be taken several times a day. If there is blood in the stools, add half a teaspoon of honey to the decoction.

Banerji.P., (2007) says that diarrhoea is a distressing problem that normally will go away in a few days. It can become severe and last for much longer. Pomegranate peel can be boiled and drink the juice twice daily. Add a little honey to sweeten this juice. Pomegranates can also be squeezed and the juice used as a drink to cure diarrhoea. Other herbal cures for

diarrhoea include drinking chamomile or peppermint tea, or make the tea out of coriander leaves. Two teaspoons of oregano blanched in water for 10 minutes makes a drink that is a great home remedy for diarrhoea. You can do the same with mango and guava leaves.

Lond.L., (2007) reported that pomegranate has been successfully used in treating diarrhoea for years. In fact, it is pomegranate peels, not the fruit itself that have constipating effect. Peel a pomegranate and save the peels. Cut them into small pieces and lay out in the sun to dry. The peels are ready when they become hard and easily breakable. They can be stored in a tea box or glass jar. When the need arises to use the pomegranate peels' constipating effect, take 4-5 of those dry pieces, place them into a cup, and add boiling water. Cover the cup and wait until the drink cools off (pleasantly warm is the right temperature). Drink a half of the cup; it does not matter whether taking it in the morning or in the evening.

Subotina.M.D. et.al., (2004) measured the effectiveness of pomegranate skin extract for treatment of rotavirus diarrhoea in 40 children ranging in age from 3 months to 7 years with rotavirus diarrhoea admitted in Children's Hospital for Infectious Diseases, St. Petersburg, Russia. A randomized, double blinded, placebo-controlled trial with 2 groups for comparison: a treatment group that consisted of 20 children treated with pomegranate skin extract; and a control group of 20 children who received a placebo. All patients received 3 drops of pomegranate skin extract or placebo, three times daily until discontinuation of diarrhoea, or a maximum of 5 days. An objective method was used to evaluate diarrhoea, and physical examination was used to assess degree of dehydration in children. The duration of diarrhoea in the pomegranate skin extract treatment group was 3 days, compared with 5 days in the control group ($P < 0.001$). In the treatment group 8 of 20 (40%) children were diarrhoea-free 48 h after admission to the hospital, compared with 1 of 20 (5%) in the control group ($P < 0.001$).The administration of pomegranate skin extract in controlled doses shortened the duration of rotavirus diarrhoea and decreased the requirement for rehydration solutions.

Jacobs.J., et.al., (1991) measured the effectiveness of homeopathic medicines (ipecacuanha, cinchonaofficinalis, Podophyllum), in the treatment of acute childhood diarrhoea by a randomized double-blind clinical trial comparing homeopathic medicine with placebo in Eighty-one children aged 6 months to 5 years of age with acute childhood diarrhoea in León, Nicaragua. An individualized homeopathic medicine was prescribed for each child and daily follow-up was performed for 5 days. Standard treatment with oral rehydration treatment was also given. The treatment group had a statistically significant ($P < 0.05$) decrease in duration of diarrhoea, defined as the number of days until there were less than three unformed stools daily for 2 consecutive days. There was also a significant difference ($P<0.05$) in the number of stools per day between the two groups after 72 hours of treatment. The statistically significant decrease in the duration of diarrhoea in the treatment group suggests that homeopathic treatment might be useful in acute childhood diarrhoea.

CHAPTER – III

METHODOLOGY

This chapter deals with research design, setting, population, sample and sample size, sampling technique, sample selection criteria, description of the tool, scoring, validity of the tool, reliability of the tool, pilot study, data collection procedure, plan of data analysis and ethical consideration.

RESEARCH DESIGN

The research design selected for the present study was a quasi experimental design, to be specific non equivalent control group pre test post test design to evaluate the effect of pomegranate skin decoction for diarrhoea. There were two groups, experimental and control group. The experimental group included those children who differed from control group only with regard to administration of pomegranate skin decoction. Pre test diarrhoea and dehydration score were measured in both experimental and control group. Pomegranate skin decoction is administered to the experimental group twice daily for four days. Control group received the routine treatment. Post test diarrhoea and dehydration were measured for four continuous days.

RESEARCH DESIGN NOTATION

$$E : O_1 \; X \; \frac{O_2 \; X \; O_3 \; X \; O_4}{3}$$

$$C : O_5 - \frac{O_6 - O_7 - O_8}{3}$$

E = Experimental group

C = Control group

X = Intervention(Administration of pomegranate skin decoction)

$O_{1,}$ O_5 = Pretest in experimental and control groups respectively.

O_2, O_3 ,O_4 = Post tests in experimental group [average was taken as post test]

O_6 ,O_7, O_8 = Post tests in control group [average was taken as post test]

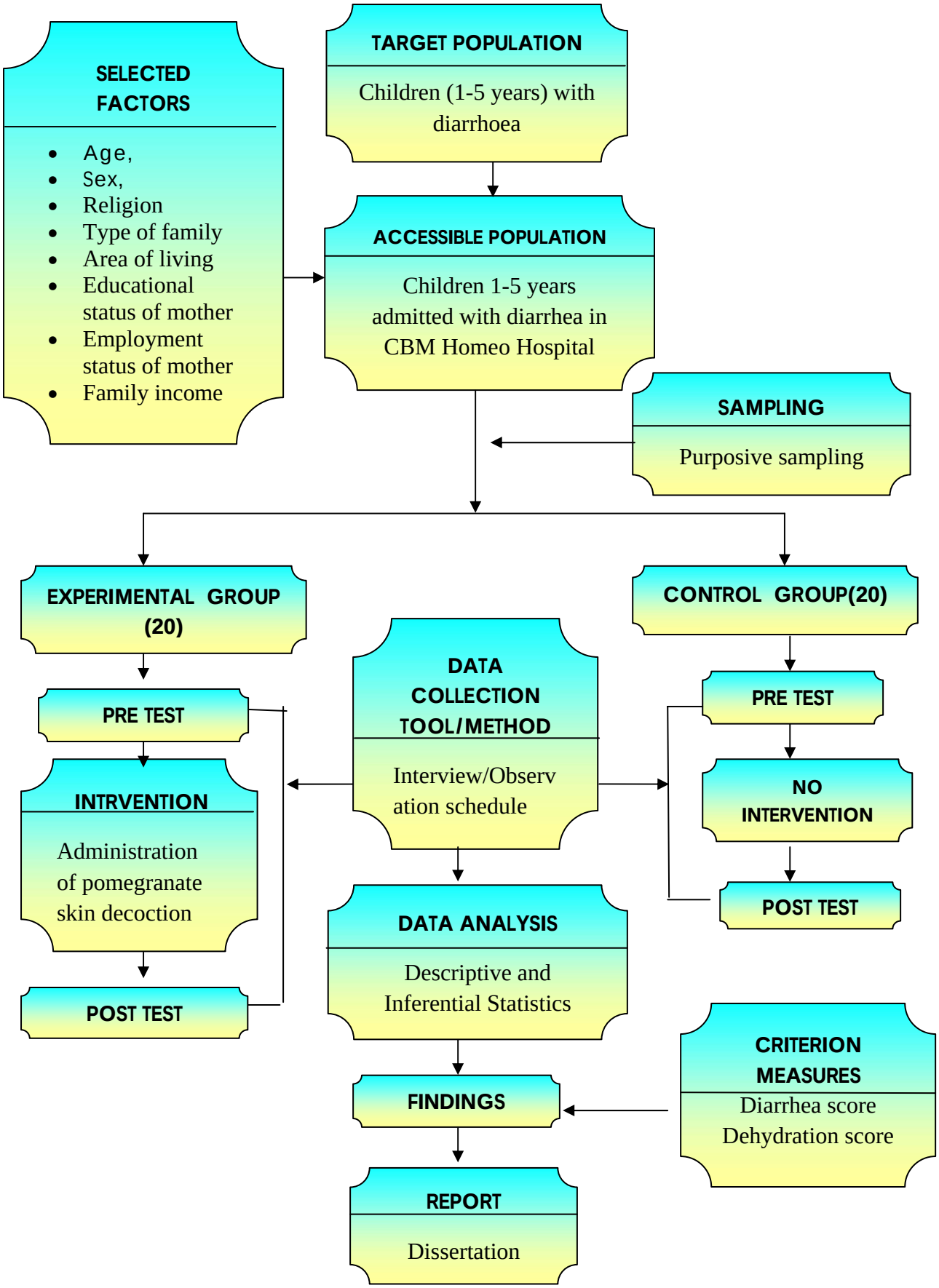


Fig. 2: SCHEMATIC PRESENTATION OF RESEARCH DESIGN

SETTING

The setting for the study was CBM Homeo Hospital. Alappuzha,Kerala.

VARIABLES

The categories of variables discussed in the study were,

Independent variable	:	Pomegranate skin decoction
Dependent variables	:	Diarrhoea and Dehydration
Associate variables	:	Age, sex, religion, educational status, family income, duration of diarrhoea, home remedies given, treatment given, medication given and type of oral fluids.

POPULATION

Population consist of the entire set of individual events, places or objects that possess the specific characteristics or attributes being studied. It also refers to the aggregate or totality of all the subjects.

Target population is the aggregate of cases about whom the investigator would like to make generalization. In this study, Children 1-5 years with diarrhoea were the target population.

Accessible population is the aggregate of cases that confirm to the designed criteria and which is accessible to the investigator as a part of subject for conducting the study. The accessible population selected for this study were Children 1-5 years admitted with moderate diarrhoea and dehydration in CBM Homeo Hospital, Alappuzha.

SAMPLE AND SAMPLE SIZE

The sample size was determined by the type of the study, variables being studied, feasibility of time, men, money and material. In this study, the sample size was 20 children in experimental group and 20 in control group.

SAMPLING TECHNIQUE

Sampling is the process of selecting a portion of the population to represent the entire population. In this study the investigator selected children with moderate diarrhoea and dehydration by purposive sampling method.

SAMPLE SELECTION CRITERIA

The study samples were selected using the following criteria:

The Inclusion Criteria referred to Children,

- Who are diagnosed to be having moderate diarrhoea and dehydration.
- Whose age group between 1-5 years of age.
- Who are available in the hospital at the time of data collection.
- Both male and female children

The Exclusion Criteria referred to Children,

- With functional disease and seriously ill.
- Whose parents refuse to participate in the study.
- With chronic diarrhoea more than 2 weeks.
- With complications of diarrhoea.

DEVELOPMENT OF TOOL

The investigator modified the WHO tool and developed an interview/observation schedule as tool for present study after exploring all sources of information like extensive library search, internet sources and consultation with experts.

DESCRIPTION OF THE TOOL

The tool used for the research study was an interview schedule and diarrhoea and dehydration observation schedule. The investigator interviewed the mothers and also assessed the children based on the diarrhoea and dehydration scoring sheet. The tool consisted of 4 sections:

Section I: Background data

Section II: Health Factors

Section III: Diarrhoea status

Section IV: Dehydration status

Section I: Background data of children, consisted of 8 questions seeking information on the background data of children. The item included age, sex, religion ,type of family, Area of living, education of mother, employment status of mother, and Family income per year.

Section II: Health Factors, consisted of 7 items regarding disease related factors such as duration of diarrhoea, any home remedies ,any special treatment given and the type and frequency of feedings given.

Section III: Diarrhoea status, consisted of an observation schedule to assess the diarrhoea, such as colour, consistency, odour, blood and mucus in the stool, episodes of

diarrhoea per day, and weight loss. This was measured in terms of dehydration scores. The total score was 21.

(Duggan C et al, 1992, http://www.who.int/child-adolescent health)

Section IV: Dehydration status, consisted of an observation schedule to assess the dehydration such as mental status, thirst, heart rate, quality of pulses, breathing, eyes, tears, mouth and tongue, skin fold, capillary refill, extremities and urine output. This was measured in terms of dehydration scores. The maximum score was 36.

(Duggan C et al, 1995, http://www.who.int/child-adolescent health).

VALIDITY OF THE TOOL

Six experts including one Medical, one Homeo and four Nursing experts validated the tool for its content. The experts were requested to check for the relevance, sequence and clarity of the tool. Modifications were done according to expert's opinion and the final tool was developed. The tool was translated into Malayalam and again it was retranslated into English, thereby, the language validity was ascertained.

RELIABILITY OF THE TOOL

In the present study the reliability of the observational schedule for diarrhoea and dehydration was established by inter ratter method, among 8 children. Reliability coefficient was r=0.86 for diarrhoea scale and r=0.89 for dehydration scale and the tool were found to be reliable for the study.

PILOT STUDY

The function of the pilot study was to obtain information to improve the project or assess its feasibility. The pilot study was conducted with 8 children who fulfilled the sample criteria for sample selection and those children were excluded from the main study. Pre test, pomegranate skin administration and post test was done and feasibility of the study was established.

Preparation of pomegranate skin decoction

50gms of fresh pomegranate skin was taken and soaked in 800ml of water for one hour. Then it was boiled until a quarter of the volume remained (200 ml). This mixture was stored in a clean dry bottle and administered as 5ml for 1-3yrs and 8ml for 3-5yrs respectively twice daily for four days (Appendix- 9).The procedure was validated by experts.

DATA COLLECTION METHOD

The present study was conducted in CBM Homeo Hospital, Alappuzha. The data were collected for 4 weeks from 3rd October 2009 to 31st October 2009.Permission was sought and obtained from authorities of the Hospital. The study samples were selected by purposive sampling method based on sample selection criteria. The study purpose and method were explained to the parent of selected children. Informed consent was obtained from the study participant's parent for participating in the study. All the children received their routine hospital care.

Pretest was done during the time of admission and children with moderate diarrhoea and dehydration were selected, 20 children in experimental group and 20 in control group. Background data were collected by interview method and assessment of diarrhoea and

dehydration by observational schedule. Children in the experimental group received pomegranate skin decoction 5ml for 1-3yrs and 8ml for 3-5yrs respectively twice daily for four days. Post test diarrhoea and dehydration score was assessed on 2nd, 3rd and 4th day for both experimental and control group.

PLAN FOR DATA ANALYSIS

The data collected from subject were edited, compiled and analyzed by using SPSS version 10. The probability level of 0.05 was used as the level of significance. The data were analysed as follows.

1. Background factors of children with diarrhoea and dehydration in experimental and control group were analysed using descriptive statistics and chi-square.
2. Data on mean difference in diarrhoea and dehydration score among children in experimental and control group were analyzed using descriptive and inferential statistics.
3. Data on association between the mean difference in diarrhoea, dehydration and selected factors among children in experimental group were analyzed using linear regression.

ETHICAL CONSIDERATION

For the present study, the investigator took into consideration the ethical values. The study was accepted by the research and ethical committee. Prior permission was obtained from CBM Homeo Hospital, Alappuzha. Explanation regarding the purpose of the study was done and informed consent obtained from the study participant's parents for participating in the study. No routine care was altered or withheld.

CHAPTER – IV

DATA ANALYSIS AND INTERPRETATION

The analysis and interpretation of data of this study were based on the data collected by interview/observation schedule. The results were computed using descriptive and inferential statistics. The data were entered into excel sheet and analyzed using SPSS 10 version. The probability value of less than 0.05 was considered to be significant.

The objectives of the study were,

1. To assess diarrhoea before and after administration of pomegranate skin decoction in experimental group.
2. To assess dehydration before and after administration of pomegranate skin decoction in experimental group.
3. To compare mean difference in diarrhoea among children in experimental and control group.
4. To compare mean difference in dehydration among children in experimental and control group.
5. To find the association between the mean difference in diarrhoea and selected factors among children in experimental group.
6. To find the association between the mean difference in dehydration and selected factors among children in experimental group.

The data were analyzed and organized under the following headings

Section I : Data on background factors of children.

Section II : Data on mean difference in diarrhoea and dehydration among children in experimental and control group.

Section III : Data on association between the mean difference in diarrhoea, dehydration and background factors among children in experimental group.

SECTION – I: DATA ON BACKGROUND FACTORS OF CHILDREN

TABLE – 1

Frequency, percentage and chisquare distribution of children according to background factors in experimental and control group

Background Factors	*Experimental group (n=20)*		*Control group (n=20)*		χ^2 *Value*	Sig.
	No	%	No	%		
Sex						
a) Male	10	50	11	55	0.1	0.75 (NS)
b) Female	10	50	9	45		
Type of family						
a) Nuclear	9	45	9	45	0.00	1 (NS)
b) Joint	11	55	11	55		
c) Extended	0	0	0	0		
Employment status of mothers						
a) Unemployment	9	45	7	35	0.42	0.81 NS
b) Self employed	5	25	6	30		
c) Employed	6	30	7	35		
Duration of diarrhoea						
a) 1 day	3	15	2	10	0.23	0.89
b) 2-3 days	14	70	15	75		NS
c) > 3 days	3	15	3	15		
Any home remedies given						
a) Yes	2	10	4	20	2.06	0.15
b) No	18	90	16	80		NS

Background Factors	*Experimental group (n=20)*		*Control group (n=20)*		χ^2 *Value*	Sig.
	No	%	No	%		
Mention home remedies						
a) Black tea	0	0	0	0		
b) Honey	0	0	0	0	0.38	0.33
c) Any other	2	10	4	20		NS
d) Not applicable	18	90	16	80		
Any drug given						
a) Yes	7	35	7	35	0.0	1.0
b) No	13	65	13	65		NS
Specify the treatment						
a) Ayurveda	0	0	0	0		
b) Alopathy	0	0	0	0		
c) Homeopathy	7	35	7	35	1	0.63
d) Siddha	0	0	0	0		NS
e) Not applicable	13	65	13	65		
Specify the medication						
a) Antibiotic	0	0	0	0		
b) Antidiarrhoeal	7	35	7	35		0.74
c) IV fluids	0	0	0	0	0.11	NS
d) All the above	0	0	0	0		
e) Not applicable	13	65	13	65		
Type of oral fluids						
a) Rice kanji	15	75	17	85		
b) Tender coconut water	4	20	2	10		
c) Sugar salt solution	1	5	1	5	0.79	0.67

Background Factors	*Experimental group (n=20)*		*Control group (n=20)*		χ^2 *Value*	Sig.
	No	%	No	%		
d) Butter milk	0	0	0	0		NS
e) Fruity juice	0	0	0	0		
f) Any other	0	0	0	0		

NS = Not Significant

Table 1 shows the frequency, percentage and chi-square distribution of children according to background factors in experimental and control group.

Regarding sex, in experimental group both male and female were equal in number 10(50%) and, in control group also majority of children were male 11(55%). The obtained χ^2 = value χ^2 = 0.1 was not significant.

Regarding type of family, majority of children were from joint family 11(55%) in experimental group. In control group also majority of children were from joint family 11(55%). The obtained χ^2 value χ^2 = 0.00 was not significant.

Regarding employment status of mothers, majority were unemployed 9(45%) in experimental group. In control group both employed and unemployed were equal in number 7(35%).The obtained χ^2 value χ^2 = 0.42 was not significant.

Regarding duration of diarrhoea, majority of children were having 2-3 days duration 14(70%) in experimental group and in control group also majority were having 2-3 days duration 15(75%). The obtained χ^2 value χ^2 = 0.23 was not significant.

Regarding home remedies, majority of children had not received any home remedies 18(90%) in experimental group. In control group also majority had not received any home remedies 16(80%). The obtained χ^2 value $\chi^2 = 2.06$ was not significant. Majority of children in both experimental and control group had not received any home remedies 18(90%) and 16(80%). The obtained χ^2 value χ^2=0.38 was not significant.

Regarding drugs given, majority of children in the experimental group and control group had not given any drugs 13(65%). The obtained χ^2 value χ^2=0.00 was not significant. Majority of children in both experimental and control group had not received any treatment before hospitalisation 13(65%). The obtained χ^2 value χ^2=1 was not significant.

Regarding the medication, majority of children in both experimental and control group had not received any drugs 13(65%). The obtained χ^2 value χ^2 =1 was not significant. Regarding the type of oral fluids, majority of children received rice kange 15(75%) in experimental group. In control group majority of children received rice kange 17(85%). The obtained χ^2 value $\chi^2 = 0.79$ was not significant.

It was inferred that in the experimental group both male and female were equally distributed, majority were from joint family, mothers were employed, duration of diarrhoea was 2-3 days, had not received any home remedies, drugs or other treatments, and oral fluid received was rice kanji

It was inferred that majority of children in the control group were males, from joint family, mothers were employed, duration of diarrhoea was 2-3 days, had not received any home remedies, drugs or other treatments, and oral fluid received was rice kanji

Therefore both groups were comparable in relation to selected background factors.

Figure 3, shows frequency and percentage distribution of children according to age. Majority of children 12(60%) were in the age group of 1-3 yrs least 8(40%) were in the age group of 4-5yrs in experimental group. In control group majority of children 13(65%) in the age group of 1-3 yrs and least 7(35%) in the age group of 4-5 yrs. The obtained $\chi^2 = 0.11$ was not significant.

It was inferred that the experimental and control group were comparable with regard to age.

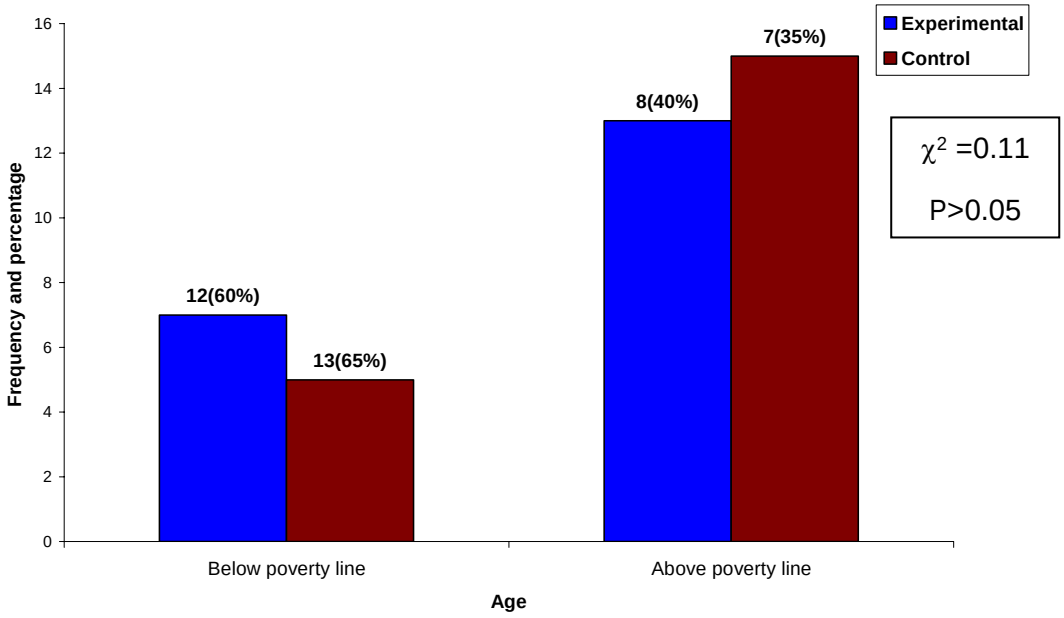
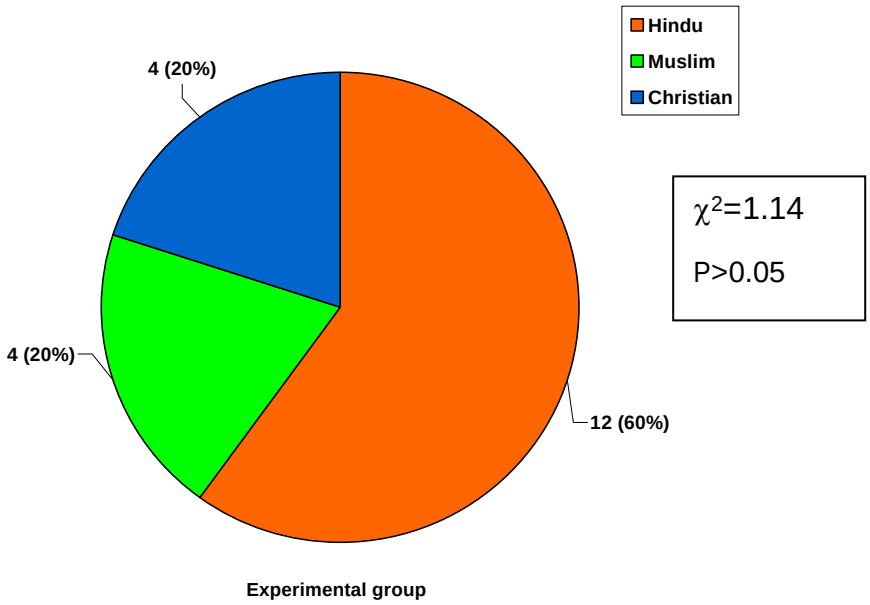


Fig. 3: Frequency percentage and chi-square distribution of children according to age.

Figure 4, shows frequency and percentage distribution of children according to religion. Majority of children 12(60%) were Hindu in experimental group. In control group also majority of children were Hindu 15(75%). The obtained χ^2=1.14 was not significant.

It was inferred that the experimental and control group were comparable with regard to religion.



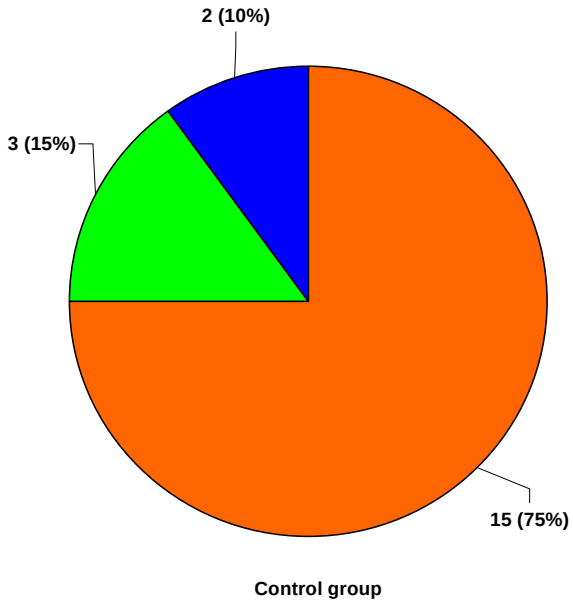


Fig.4: Frequency percentage and chi square distribution of children according to religion

Figure 5, shows frequency and percentage distribution of children according to Educational status of mothers. In experimental group majority of mothers were having secondary and higher secondary education 7(35%).In control group majority were having higher secondary education 7(35%). The obtained χ^2=0.28 was not significant.

It was inferred that the experimental and control group was comparable with regard to educational status of mothers.

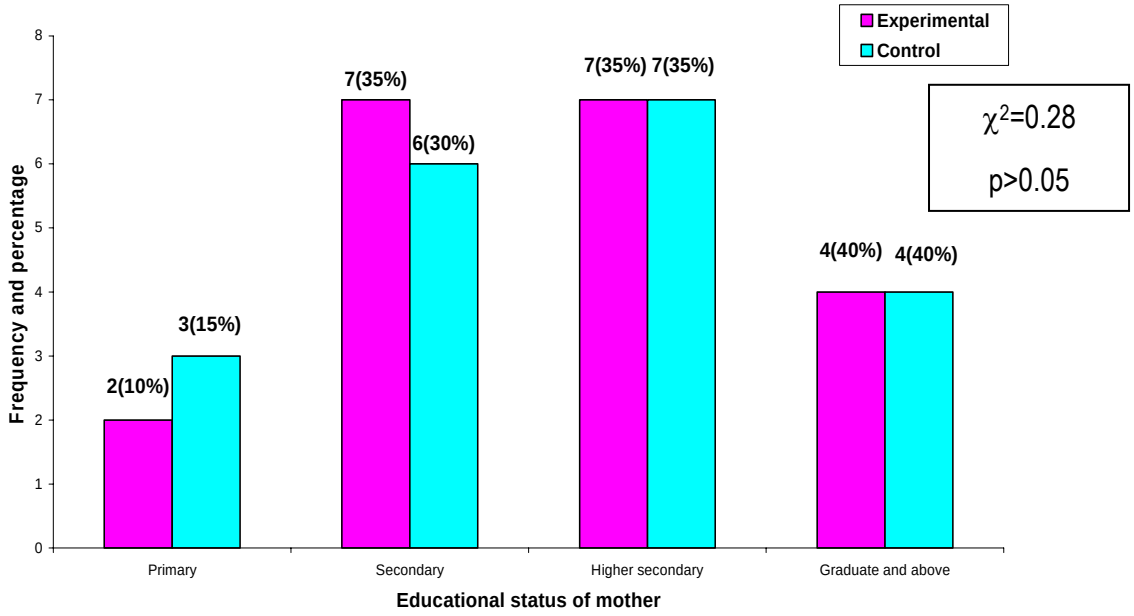


Fig. 5: Frequency percentage and chisquare distribution of children according to educational status of mothers.

Figure 6, shows frequency and percentage distribution of children according to the family income. In experimental group majority were from above poverty line 13(65%).In control group also majority were from above poverty line 15(75%). The obtained χ^2 = 0.48 was not significant.

It was inferred that the experimental and control group were comparable with regard to family income.

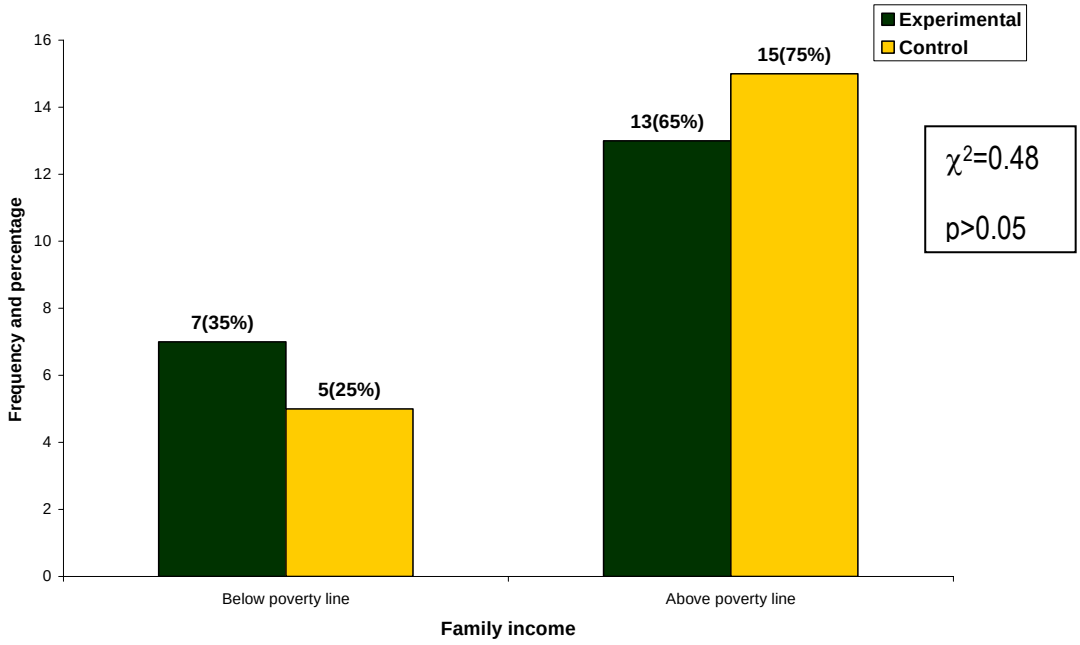


Fig. 6: Frequency percentage and chisquare distribution of children according to family income

SECTION II: DATA ON MEAN DIFFERENCE IN DIARRHOEA AND DEHYDRATION AMONG CHILDREN IN EXPERIMENTAL AND CONTROL GROUP

For the purpose of the study, the following null hypotheses were stated.

H_{01} : There will be no significant difference in diarrhoea before and after administration of pomegranate skin decoction in experimental group.

H_{02} : There will be no significant difference in dehydration before and after administration of pomegranate skin decoction in experimental group.

H_{03} : There will be no significant difference in mean difference in diarrhoea among children in experimental and control group.

H_{04} : There will be no significant difference in mean difference in dehydration among children in experimental and control group.

TABLE – 2

Mean, range, standard deviation (SD), mean difference and 't' value regarding pre and post diarrhoea among children in experimental group

	Diarrhoea among experimental group (N=20)				
	Mean	*SD*	*Range*	*Mean Difference*	*'t' value* (p)
Pre test	13.35	0.87	11-14	3.88	19.031 p=0.01 (S)
Post test	9.47	0.73	8-11		

S= Significant

Table 2 shows the mean, range, SD and mean deviation and 't' value regarding pre and post test diarrhoea among children in experimental group.

The obtained over all post test mean diarrhoea 10.3 (SD = 1.16) was less than the pre test diarrhoea 13.55 (SD=0.71). The obtained mean difference was 3.25 and't' value t= 19.031 (p=0.01) was significant. Therefore the null hypothesis was rejected.

It was inferred that diarrhoea had significantly reduced after the administration of pomegranate skin decoction. It was found to be effective.

TABLE -3

Mean, range, standard deviation (SD), mean difference and 't' value regarding pre and post dehydration among children in experimental group

	Dehydration among experimental group (N=20)				
	Mean	*Range*	*SD*	*Mean Difference*	*'t' value* (p)
Pre test	22.65	18-24	1.81	6.63	16.61 p=0.01 S
Post test	16.02	14-18	0.96		

S= Significant

Table 3 shows the mean, range, standard deviation, mean difference and 't' value regarding pre and post test dehydration among children in experimental group.

The obtained over all post test mean dehydration 16.02 (SD = 0.96) was less than the pre test dehydration 22.65 (SD=1.81). The obtained mean difference was 6.63 and 't' value t=16.61 (p=0.01) was significant. Therefore the null hypothesis was rejected.

It was inferred that dehydration had significantly reduced after the administration of pomegranate skin diction. It was found to be effective.

TABLE – 4

Mean, standard deviation (SD), mean difference and 't' value regarding mean difference in diarrhoea among children in experimental and control group.

	Mean difference between pretest and post test diarrhoea				
	N	*Mean difference*	*SD*	*Difference in mean difference*	*T value (p)*
Experimental group	20	3.88	0.91	1.27	4.92 (p=0.01) S
Control group	20	2.62	0.71		

S=Significant

Table 4 shows the mean, SD, mean deviation and 't' value regarding post test diarrhoea among children in experimental and control group.

The obtained mean difference regarding diarrhoea 3.88 (SD = 0.91) in experimental group was more than the mean difference 2.62 (SD = 0.71) in control group. The obtained difference in mean difference was 1.27. 't' value t=4.92 (p=0.01) was significant. Therefore the null hypothesis was rejected.

It was inferred that diarrhoea had significantly reduced after administration of pomegranate skin decoction in experimental group than control group. It was found to be effective.

TABLE – 5

Mean, standard deviation (SD), mean difference and 't' value regarding dehydration among children in experimental and control group.

	Mean difference between pretest and post test dehydration				
	N	*Mean difference*	*SD*	*Difference in mean difference*	*T value (p)*
Experimental group	20	6.63	0.79	1.17	2.21 (p=0.03) S
Control group	20	5.47	1.55		

S=Significant

Table 5 shows the mean, SD, mean difference and't' value regarding mean difference between pretest and post test dehydration among children in experimental and control group.

The obtained mean difference regarding dehydration 6.63 (SD=1.79) in experimental group was more than the mean difference 5.47 (SD=1.55) in control group. The obtained difference in mean difference was 1.17 and 't' value t=2.21(p=0.03) was significant. Therefore, the null hypothesis was rejected.

It was inferred that dehydration had significantly reduced after administration of pomegranate skin decoction in experimental group than control group. It was found to be effective.

SECTION III: DATA ON ASSOCIATION BETWEEN THE MEAN DIFFERENCE IN DIARRHOEA, DEHYDRATION AND SELECTED FACTORS AMONG CHILDREN IN EXPERIMENTAL GROUP

For the purpose of this study the following null hypothesis were stated.

H_{05} : There will be no significant association between the mean difference in diarrhoea and selected factors among children in experimental group.

H_{06} : There will be no significant association between the mean difference in dehydration and selected factors among children in experimental group.

TABLE – 6

Linear regression regarding association between mean difference in diarrhoea and selected factors among children in experimental group

Selected Variables	*Standardized co-efficient (beta)*	*'t' value*	*Significance (p)*
Age	-0.41	-0.96	0.37 (NS)
Sex	0.07	0.14	0.89 (NS)
Religion	0.27	0.67	0.53 (NS)
Educational status	-0.49	-0.54	0.61 (NS)
Family income	-0.55	0.88	0.41 (NS)
Duration of diarrhoea	0.13	0.26	0.81 (NS)
Home remedies given	0.46	0.52	0.62 (NS)
Treatment given	0.41	0.42	0.69 (NS)
Medication given	0.29	0.30	0.78 (NS)
Type of oral fluids	0.31	0.58	0.58 (NS)

NS =Not Significant

Table- 6 shows the standard co-efficient and "t" value regarding mean difference in diarrhoea score and selected factors among children in experimental group based on linear regression.

The obtained 't' values t = -0.96 (p = 0.37); t = 0.14 (p = 89); t = 0.67 (p= 0.53); t = -0.54 (p = 0.61); t = -0.88 (p = 0.41); t = 0.26 (p = 0.81); t = 0.52 (p = 0.62); t = 0.42 (p = 0.69), t = 0.30 (p = 0.78); t = 0.58 (p = 0.58), regarding age, sex, religion, educational status, family income, duration of diarrhoea, home remedies given, treatment given, medication given and type of oral fluids respectively were not significant. Therefore the null hypothesis H_{05} was accepted.

It was inferred that reduction of diarrhoea among children in experimental group was not influenced by any selected factors. The procedure was independently effective.

TABLE – 7

Linear regression regarding association between mean difference in dehydration and selected factors among children in experimental group

Selected Variables	*Standardized co-efficient (beta)*	*'t' value*	*Significance (p)*
Age	0.59	1.55	0.17 (NS)
Sex	0.34	0.76	0.48 (NS)
Religion	0.59	1.62	0.16 (NS)
Educational status	-0.80	-1.0	0.36 (NS)
Family income	0.15	0.26	0.80 (NS)
Duration of diarrhoea	-0.63	-1.35	0.23 (NS)
Home remedies given	0.21	0.27	0.79 (NS)
Treatment given	0.15	0.17	0.87 (NS)
Medication given	-0.02	-0.02	0.98 (NS)
Type of oral fluids	-0.02	-0.04	0.97 (NS)

NS =Non Significant

Table- 7, shows the standard co-efficient and "t" value regarding mean difference in dehydration and selected factors among children in experimental group based on linear regression.

The obtained 't' values t = 1.55 (p = 0.17); t = 0.76 (p = 0.48); t = 1.62 (p= 0.16); t = -1.0 (p = 0.36); t = 0.26 (p = 0.80); t = -1.35 (p = 0.23); t = 0.27 (p= 0.79); t = 0.17 (p = 0.87), t = -0.21 (p = 0.98); t = -0.04 (p = 0.97), regarding age, sex, religion, educational status, family income, duration of diarrhoea, home remedies given treatment given, medication given and type of oral fluids respectively were not significant. Therefore the null hypothesis H_{06} was accepted.

It was inferred that reduction of dehydration among children in experimental group was not influenced by any selected factors. The procedure pomegranate skin decoction was independently effective in reducing dehydration among children.

CHAPTER – V

SUMMARY, FINDINGS, DISCUSSION, IMPLICATIONS, LIMITATIONS, RECOMMENDATIONS AND CONCLUSION

This chapter deals with summary, findings, discussion, implications, limitations, recommendations and conclusion. The essence of any research project is based on study findings, limitations, interpretation of the research results and recommendations to incorporate the study implications. It also gives meaning to the results obtained in the study.

SUMMARY

The prime aim of the study was to assess diarrhoea and dehydration before and after administration of pomegranate skin decoction among children.

The objectives of the study were,

1. To assess diarrhoea before and after administration of pomegranate skin decoction in experimental group.
2. To assess dehydration before and after administration of pomegranate skin decoction in experimental group.
3. To compare mean difference in diarrhoea among children in experimental and control group.
4. To compare mean difference in dehydration among children in experimental and control group.

5. To find the association between the mean difference in diarrhoea and selected factors among children in experimental group.
6. To find the association between the mean difference in dehydration and selected factors among children in experimental group.

The study attempted to examine the following research hypothesis.

H_1 : There will be a significant difference in diarrhoea before and after administration of pomegranate skin decoction in experimental group.

H_2 : There will be a significant difference in dehydration before and after administration of pomegranate skin decoction in experimental group.

H_3 : There will be a significant difference in the mean difference in diarrhoea among children in experimental and control group.

H_4 : There will be a significant difference in the mean difference in dehydration among children in experimental and control group.

H_5 : There will be a significant association between the mean difference in diarrhoea and selected factors among children in experimental group.

H_6 : There will be a significant association between the mean difference in dehydration and selected factors among children in experimental group.

Literature review was done for the present study, and presented in the following headings, (1) Studies related to Diarrhoea, Dehydration and management, (2) Studies related to pomegranate (3) Studies related to effect of pomegranate on diarrhoea and dehydration.

The conceptual framework adopted for the present study was based on the Nursing process model (ANA 1991). This model helped the investigator to assess the diarrhoea and dehydration before and after administration of pomegranate skin decoction.

The research design selected for the present study was a quasi experimental design, to be specific non equivalent control group pre test post test design to evaluate the effect of pomegranate skin decoction on diarrhoea.The independent variable was pomegranate skin decoction and dependent variables were Diarrhoea and Dehydration

The investigator modified the WHO tool and developed an interview/observation schedule as tool for present study. The content validity of the tool was established by 6 experts. The reliability of the tool was established by inter rater reliability method. The obtained reliability coefficient was r= 0.86 for diarrhoea scale and r=0.89 for dehydration scale. The pilot study was conducted in CBM Homeo Hospital, Alappuzha among 8 children, who fulfilled sample selection criteria and who were other than study samples. The study was found to be feasible.

The main study was conducted in CBM Homeo Hospital, Alappuzha, Kerala. Prior permission from the authorities was sought and obtained. Purposive sampling technique was used to select the samples and informed consent was obtained. Pretest was done to assess the diarrhoeal and dehydration score. Children coming under moderate diarrhoea and dehydration were selected. For experimental group intervention was given twice daily for four continuous days. Diarrhoea and Dehydration score was assessed on 1st ,2nd, 3rd and 4th day for both experimental and control group. The average of observations made on 2nd, 3rd and 4th day was considered as post test.The data gathered were analyzed and interpreted using SPSS package (version 10) A probability of <0.05 level of significance was considered significant.

CHARECTERISTICS OF STUDY SAMPLES

Majority of children in the experimental group were equally distributed 10(50%) as male and female, were in the age group of 1-3 yrs 12(60%), hindus 12(60%), from joint family 11(55%), above poverty line 13(65%), had mothers unemployed 9(45%) and equally distributed in secondary and higher secondary education group 7(35%), duration of diarrhoea was 2-3

days 14(70%), had not received any home remedies 18(90%), had no drugs 13(65%) or other treatments 13(65%), and received was rice kanji 15(75%).

It was inferred that majority of children in the control group were males 11(55%), were in the age group of 1-3 yrs 13(65%), were hindus 15(75%), were from joint family 11(55%), above poverty line 13(65%), where mothers were equally distributed in employed and unemployed group 7 (35%) ,had higher secondary education, duration of diarrhoea was 2-3 days 15(75%), had not received any home remedies 16(80%), had no drugs 13(65%),or other treatments 13(65%), and received was rice kanji 17(85%).

FINDINGS

The major findings of the study were classified under following headings on objectives

Objective 1: To assess diarrhoea before and after administration of pomegranate skin decoction in experimental group.

- There was a significant reduction in the mean diarrhoea after administering pomegranate skin decoction among children in experimental group. t = 19.03 (p=.01) was significant.

Objective 2: To assess dehydration before and after administration of pomegranate skin decoction in experimental group.

- There was a significant reduction in the mean dehydration after administering pomegranate skin decoction among children in experimental group. t = 16.61 (p=.01) was significant

Objective 3: To compare mean difference in diarrhoea among children in experimental and control group.

- The mean difference of diarrhoea in experimental group was significantly more than the control group. t=4.92(p=0.01)

Objective 4: To compare mean difference in dehydration among children in experimental and control group.

- The mean difference regarding dehydration in experimental group was significantly more than the control group.t=2.21(p=0.03)

Objective 5: To find the association between the mean difference in diarrhoea and selected factors among children in experimental group.

- There was no significant association between the mean difference in diarrhoea and selected variables such as age ,t = -0.96 (p = 0.37) ; sex, t = 0.14 (p = 89); religion, t = 0.67 (p= 0.53); educational status, t = -0.54 (p = 0.61); family income, t = -0.88 (p = 0.41); duration of diarrhoea, t = 0.26 (p = 0.81); home remedies given, t = 0.52 (p = 0.62); treatment given, t = 0.42 (p = 0.69) ; medication given, t = 0.30 (p = 0.78); and type of oral fluids t = 0.58 (p = 0.58).

Objective 6: To find the association between dehydration and selected factors among children in experimental group.

- There was no significant association between the mean difference in dehydration and selected variables such as age, t = 1.55 (p = 0.17); sex, t = 0.76 (p = 0.48); religion, t = 1.62 (p= 0.16); educational status, t = -1.0 (p = 0.36); family income, t = 0.26 (p = 0.80); duration of diarrhoea, t = -1.35 (p = 0.23); home remedies given, t = 0.27 (p= 0.79); treatment given, t = 0.17 (p = 0.87); medication given, t = -0.21 (p = 0.98); and type of oral fluids, t=0.04 (p = 0.97).

DISCUSSION

The results of the study were discussed according to the findings of the study.

Finding 1: Findings on diarrhoea and dehydration before and after administration of pomegranate skin decoction in experimental group.

- There was a significant reduction in the mean diarrhoea after administration of pomegranate skin decoction t= 19.031 (p=0.01)
- There was a significant reduction in the mean diarrhoea after administration of pomegranate skin decoction t= 16.61 (p=0.01)

Kaur U, (2008) reported that "decoction prepared from pomegranate skin is very useful in stopping diarrhoea", Subotina M.D.et al. (2004) reported that "the administration of pomegranate skin extract in controlled doses shortened the duration of diarrhoea".

Finding 2 : findings on mean difference in diarrhoea and dehydration among experimental group and control group

- The mean difference of diarrhoea in experimental group was significantly more than the control group. t=4.92(p=0.01)
- The mean difference regarding dehydration in experimental group was significantly more than the control group.t=2.21(p=0.03)

Lond L, (2007) reported that "pomegranate peel extract has been successfully used in treating diarrhoea for years".

Finding 3: findings on association between the mean difference in diarrhoea, dehydration and selected factors in experimental group.

- There was no significant association between age (p = 0.37); sex, (p = 89); religion, (p = 0.53); educational status, (p = 0.61); family income, (t = 0.41); duration of diarrhoea, (p = 0.81); home remedies given, (p = 0.62); treatment given, (p = 0.69); medication given(p = 0.78); type of oral fluids(p = 0.58) and mean difference in diarrhoea score.
- There was no significant association between age (p = 0.17); sex (p=0.48); religion (p = 0.16); educational status (p = 0.36); family income(t = 0.80); duration of diarrhoea (p = 0.23); home remedies given(p = 0.79); treatment given (p = 0.87), medication given (p = 0.98); type of oral fluids (p = 0.97) and mean difference in dehydration score

IMPLICATIONS

The findings of the study have the following implications in nursing

Implications for Nursing Practice

- Administration of pomegranate skin decoction is an effective alternate measure to reduce diarrhoea and dehydration, which can be used at community level.
- Pomegranate skin decoction is particularly safe and effective for children because it tends to be so much gentler than pharmaceutical alternatives. Therefore nurses can administer the same as a supportive therapy.
- Nurses can promote these measures through individual or group teaching.

LIMITATIONS

- The pharmacological management given during the study for diarrhoea and dehydration were beyond the control of investigator.
- Sample size was less to make any generalization.

RECOMMENDATIONS

- A similar study can be conducted in a large group of children with diarrhoea and dehydration.
- A longer period of intervention can be studied for more reliability and effectiveness.
- The study can be replicated in different settings to strengthen the finding.

CONCLUSION

The following conclusions were drawn from the findings of the study. Pomegranate skin decoction administration is a simple and effective method to treat diarrhoea and dehydration .This will aid early recovery from diarrhoea and dehydration and is a cost effective and simple measure. Therefore nurses working in paediatric department can use this measure as an adjunct treatment in diarrhoea and dehydration.

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APPENDIX – I

LETTER SEEKING PERMISSION FOR CONTENT VALIDITY

From,

30083612

II year Msc (Nursing),

Annai JKK Sampoorani Ammal College of Nursing,

Komarapalayam-638183, Namakkal distict.

To,

Through

The Dean,

Annai JKK Sampoorani Ammal College of Nursing,

Komarapalayam- 638183.

Respected madam/sir,

Sub: Requisition for opinion and suggestion of experts for content validity.

I am 30083612, II year Msc Nursing student of Annai J.K.K Sampoorani Ammal College of nursing, komarapalayam, under the Tamil Nadu Dr.M.G.R Medical University, Chennai

As a partial fulfillment of Msc, Nursing programme, I am conducting "A study to assess the effect of pomegranate skin decoction on diarrhoea among children in selected hospital, Alappuzha, Kerala".

Here with I am sending the tool for the content validity for your expert opinion. I humbly request yourself to spare a little of your valuable time for me for which I remain ever grateful to you. It would be very kind of you to return the same to the undersigned at the earliest.

Thanking you

Date: Yours sincerely,

Place: 30083612

APPENDIX – II

LETTER SEEKING PERMISSION TO CONDUCT RESEARCH

From,

30083612

II year Msc (Nursing),

Annai JKK Sampoorani Ammal College of Nursing,

Komarapalayam-638183, Namakkal distict.

To,

Through

The Dean,

Annai JKK Sampoorani Ammal College of Nursing,

Komarapalayam-638183.

Respected madam/sir,

Sub: Requisition for permission to conduct the Research study.

I am30083612, II year M.Sc., Nursing student of Annai J.K.K Sampoorani Ammal College of nursing, komarapalayam, under the Tamil Nadu Dr.M.G.R Medical University, Chennai

As a partial fulfillment of University requirement for the award of Master of Science in Nursing Degree, I am conducting a research on the following topic, "A study to assess the effect of pomegranate skin decoction on diarrhoea among children in selected hospital, Alappuzha, Kerala".

I would like to conduct the research in your esteemed institution. Please grant permission for the same.

Thanking you

Date: Yours sincerely,

Place: 30083612

APPENDIX – III

PERMISSION GRANTED CERTIFICATE

C.B.M Homoeo Medical Trust Hospital

CBM Homoeo House (Kaleeckal Thekkethil) P.B. No: 3, P.O. Nooranad - 690504

e-mail : rajindiainternational@yahoo.co.in

Ref : ***Date .....***

Dr. Rajan P.D. (*Managing Director*)
Mob: 9447349575, 0479-2387917

Date: 23.09.2009

To

The Dean
Annai JKK Sampoorani Ammal College of Nursing
Komarapalayam

Sub: Permission for conducting the research study

Sir,

I hereby granted permission to conduct the research in our institution to the No. 30083612, II year Msc Nursing student, who is undertaking the following study, "A Study to assess the effect of Pomegranate skin decoction for diarrhoea among children in selected hospital, Kerala".

Thanking You,

Yours sincerely,

Dr. P. D. Rajan
Regd. Medical Practitioner

C. B. M. HOMOEO MEDICAL TRUST HOSPITAL
Pin. 690504
NOORANAD.

APPENDIX – IV

LIST OF EXPERTS

1. Dr. SENTHIL PRAKASH DCH
   Hari Sakthivel Hospital, Erode

2. Dr.P.D.RAJAN BHMS
   CBM Homeo Hospital, Alappuzha

3. Dr.Mrs.TAMILMANI, M.Sc.(N),Ph.D
   Principal
   Annai JKK Sampoorani Ammal College of Nursing
   Komarapalayam

4. Mrs.KAVIMANI, M.Sc (N)
   Principal
   SPM College of Nursing
   Erode

5. Ms.L.SHEELADEVI, M.Sc (N)
   Lecturer
   Annai JKK Sampoorani Ammal College of Nursing
   Komarapalayam

6. Ms. ALLWIN
   Lecturer
   Annai JKK Sampoorani Ammal College of Nursing
   Komarapalayam

APPENDIX - V

CONTENT VALIDITY CERTIFICATE

I hereby certify that I have validated the tool of 30083612, M.Sc (Nursing), student who is undertaking "A study on effect of pomegranate skin decoction for diarrhoea among children in selected hospital, Alappuzha, Kerala."

Place: Komarapalayam

Date:

Signature of the expert

Designation

APPENDIX – VI

CERTIFICATE ON COMPLETION OF RESEARCH STUDY

C.B.M Homoeo Medical Trust Hospital

CBM Homoeo House (Kaleeckal Thekkethil) P.B. No: 3, P.O. Nooranad - 690504

e-mail : rajindiainternational@yahoo.co.in

Ref : ***Date .....***

Dr. Rajan P.D. (*Managing Director*)
Mob: 9447349575, 0479-2387917

Date: 30.10.2009

TO WHOMSOVER IT MAY CONCERN

This is to certify that No. 30083612, II year Msc Nursing student of Annai JKK Sampoorani Ammal College of Nursing, Komarapalayam under the Tamil Nadu Dr. MGR Medical University Chennai; has successfully completed her research study in this hospital from 05/10/2009 to 30/10/2009.

Thanking You,

Yours sincerely,

Dr. P. D. Rajan
Regd. Medical Practitioner

C.B.M. HOMOEO MEDICAL TRUST HOSPITAL
Pin. 690504
NOORANAD.

APPENDIX – VII

OBSERVATION / INTERVIEW SCHEDULE ON DIARRHOEAL AND DEHYDRATION STATUS OF CHILDREN

CODE NO: _____

Instruction

The interviewer will ask questions to mother one by one and place a tick mark against the correct response given by the respondent

SECTION (A): BACKGROUND DATA

1. Age of the child

a) 1-3 years ☐

b) 4-5 years ☐

2. Sex of the child

a) Male ☐

b) Female ☐

3. Religion

a) Hindu ☐

b) Muslim ☐

c) Christian ☐

4. Type of family

a) Nuclear ☐

b) Joint ☐

c) Extended ☐

5. Area of living

a) Rural ☐

b) Urban ☐

c) Slum ☐

6. Educational status of mother

a) Primary ☐

b) Secondary ☐

c) Higher secondary ☐

d) Graduate and above ☐

7. Employment status of mother

a) Unemployed ☐

b) Self employed ☐

c) Employed ☐

8. Family income per month

a) Below poverty line ☐

b) Above poverty line ☐

SECTION (B): HEALTH FACTORS

1. Since how long baby is having diarrhoea?

   a) 1 day ☐

   b) 2-3 days ☐

   c) >3 days ☐

2. Did the baby receive any home remedies for diarrhoea?

   a) Yes ☐

   b) No ☐

3. If yes mention whether any of these was given?

   a) Black tea ☐

   b) Honey ☐

   c) Any other _____ ☐

   d) Not applicable ☐

4. Was the child given any drug for diarrhoea?

   a) Yes ☐

   b) No ☐

5. If yes specify what treatment was given?

   a) Ayurveda ☐

   b) Alopathy ☐

   c) Homeopathy ☐

   d) Siddha ☐

   e) Not applicable ☐

6. If yes specify the type of medication?

a) Antibiotic ☐

b) Antidiarrhoeal ☐

c) IV Fluids ☐

d) All the above ☐

e) Not applicable ☐

7. What type of oral fluid was given?

a) Rice kanji ☐

b) Tender coconut water ☐

c) Salt sugar solution ☐

d) Butter milk ☐

e) Lime juice ☐

f) Any other _____ ☐

SECTION (C): DIARRHOEAL STATUS

CATEGORY	1	2	3
1. Colour of the stool	Yellowish	Greenish yellow	Green
2. Consistency of the stool	Pasty (semisolid)	Loose(liquid with solid elements)	Watery(No solid elements)
3. Odour of the stool	Pungent	Mild foul smelling	Foul smelling
4. Blood seen in the stool	No blood	Blood stained	Black and tarry stools
5. Mucus in stool	Absent	Less mucus	More mucus
6. Episodes of diarrhoea per day	1-2 times	3-4 times	>4times
7. Weight loss	<5%loss of body weight	5-9%loss of body weight	>9%loss of body weight

SECTION (D): DEHYDRATION STATUS

	Symptoms	Mild (1)	Moderate (2)	Severe (3)
1	Mental status	Well; alert	Fatigued ,restless or irritable	Apathetic, lethargic, unconscious
2	Thirst	Drinks normally; might refuse liquids	Thirsty; eager to drink	Drinks poorly; unable to drink
3	Heart rate	Normal (70-120bpm)	Increased (121-150bpm)	Tachycardia(>150) bradycardia(<70) in severe cases
4	Quality of pulses	Normal	Weak	Very weak,thready, or impalpable
5	Breathing	Normal (22-25/mt)	Fast (26-35/mt)	Deep(>35/mt)
6	Eyes	Normal	Slightly sunken	Deeply sunken
7	Tears	Present	Decreased	Absent
8	Mouth and tongue	Moist	Dry	Parched
9	Skin fold	Instant recoil	Recoil in <2 seconds	Recoil in >2 seconds
10	Capillary refill	Normal(<2s)	Increased (2-3s)	Prolonged(>3s)
11	Extremities	Warm	Cool	Cold; mottled; cyanotic
12	Urine output	Normal (500-1000ml/day)	Decreased (100-499ml/day)	Minimal (<100ml/day)

Time of decoction administration	M	E	M	E	M	E	M	E
Test	Pretest		Posttest I		Posttest II		Posttest III	
Diarrhoeal score								
Dehydration score								

APPENDIX – VIII

കുട്ടികളുടെ അതിസാരവസ്ഥയെക്കുറിച്ചും നിർജ്ജലീകരണാവസ്ഥയേയും കുറിച്ചുള്ള അഭിമുഖ സംഭാഷണപ്പട്ടിക

കോഡ് നമ്പർ:

നിർദ്ദേശം:

ചോദ്യകർത്താവ് കുട്ടിയുടെ അമ്മയോട് ഓരോ ചോദ്യങ്ങളായി ചോദിക്കുകയും ശരിയായ ഉത്തരത്തിനു നേരെ അടയാളപ്പെടുത്തുകയും ചെയ്യുക.

ഭാഗം (1) : അടിസ്ഥാന വിവരങ്ങൾ

1. കുട്ടിയുടെ പ്രായം

എ. 1-3 വർഷം ☐

ബി. 4-5 വർഷം ☐

2. കുട്ടിയുടെ ലിഗഭേദം

എ. ആൺകുട്ടി ☐

ബി. പെൺകുട്ടി ☐

3. മതം

എ. ഹിന്ദു ☐

ബി. മുസ്ലീം ☐

സി. ക്രിസ്ത്യൻ ☐

4. കുടുംബത്തിന്റെ സ്വഭാവം

എ. അണുകുടുംബം ☐

ബി. കൂട്ടുകുടുംബം ☐

സി. വിസ്തൃത കുടുംബം ☐

5. താമസിക്കുന്ന പ്രദേശം

എ. ഗ്രാമം ☐

ബി. നഗരം ☐

6. മാതാവിന്റെ വിദ്യാഭ്യാസ യോഗ്യത

എ. പ്രൈമറി ☐

ബി. ഹൈസ്കൂൾ ☐

സി. +2/ പ്രീഡിഗ്രി ☐

ഡി. ബിരുദവും അതിനു മുകളിലും ☐

7. മാതാവിന്റെ ജോലി

എ. തൊഴിൽ രഹിത ☐

ബി. സ്വയം തൊഴിൽ ☐

സി. സർക്കാർ/ സ്വകാര്യജോലി ☐

8. കുടുംബത്തിന്റെ വരുമാനം

എ. ദാരിദ്ര്യരേഖയ്ക്കു താഴെ ☐

ബി. ദാരിദ്ര്യരേഖയ്ക്കു മുകളിൽ ☐

ഭാഗം (2) : അതിസാരാവസ്ഥയെക്കുറിച്ചുള്ള വിവരങ്ങൾ

1. എത്ര നാളായി കുട്ടിക്ക് അതിസാരമുണ്ട്?

എ. ഒരു ദിവസം ☐

ബി. 2-3 ദിവസം ☐

സി. 3 ദിവസത്തിൽ കൂടുതൽ ☐

2. കുട്ടിക്ക് ഏതെങ്കിലും വീട്ടൗഷധങ്ങൾ നൽകിയോ?

എ. നൽകി ☐

ബി. ഇല്ല ☐

3. നൽകി എന്നാണ് ഉത്തരമെങ്കിൽ താഴെ പറയുന്നവയിൽ ഏതാണ് നൽകിയത്?

എ. തേയിലവെള്ളം ☐

ബി. തേൻ ☐

സി. മറ്റേതെങ്കിലും ☐

4. കുട്ടിക്ക് മറ്റെന്തെങ്കിലും മരുന്ന് നൽകിയിരുന്നോ?

എ. നൽകി ☐

ബി. ഇല്ല ☐

5. നൽകി എന്നാണ് ഉത്തരമെങ്കിൽ ഏതു തരത്തിലുള്ള ചികിത്സയാണ് നൽകിയത്?

എ. ആയൂർവേദം ☐

ബി. അലോപ്പതി ☐

സി. ഹോമിയോ ☐

ഡി. സിദ്ധ ☐

6. നൽകി എന്നാണ് ഉത്തരമെങ്കിൽ ഏതു തരത്തിലുള്ള മരുന്നാണ് നൽകിയത്?

എ. ആന്റിബയോട്ടിക് ☐

ബി. ആന്റി ഡയേറിയൽ ☐

സി. IV ഫ്ളൂയിഡ്സ് ☐

ഡി. മുകളിൽ പറഞ്ഞതെല്ലാം ☐

7. ഏതൊക്കെ ദ്രാവകങ്ങളാണ് കുഞ്ഞിന് കുടിക്കാൻ നൽകിയത്?

എ. കഞ്ഞിവെള്ളം ☐

ബി. കരിക്കിൻ വെള്ളം ☐

സി. ഉപ്പ് പഞ്ചസാര ലായനി ☐

ഡി. മോര് ☐

ഇ. നാരങ്ങാവെള്ളം ☐

എഫ്. മറ്റേതെങ്കിലും ☐

ഭാഗം (3) : അതിസാര സ്കോറിംഗ് ഷീറ്റ്

നിർദ്ദേശം:

24 മണിക്കൂർ ഇടവിട്ടു രോഗാവസ്ഥ നിരീക്ഷിക്കുകയും ലഭിക്കുന്ന വിവരങ്ങൾ താഴെ നൽകിയിരിക്കുന്ന കോളങ്ങളിൽ രേഖപ്പെടുത്തുകയും ചെയ്യുക.

കാറ്റഗറി	1	2	3
1. മലത്തിന്റെ നിറം	മഞ്ഞ	പച്ചകലർന്ന മഞ്ഞ	പച്ച
2. മലത്തിന്റെ അവസ്ഥ	പേസ്റ്റുരൂപം (അർദ്ധകരാവസ്ഥ)	അർദ്ധദ്രാവകം	ദ്രാവകം
3. മലത്തിന്റെ ഗന്ധം	രൂക്ഷഗന്ധം	ചെറിയ തോതിലുള്ള ദുർഗന്ധം	ദുർഗന്ധം
4. മലത്തിലെ രക്തത്തിന്റെ സാന്നിദ്ധ്യം	രക്തത്തിന്റെ അംശമില്ല	രക്തത്തിന്റെ അംശം ഉണ്ട്	കറുത്ത നിറമുള്ള മലം
5. മലത്തിലെ സ്രവത്തിന്റെ സാന്നിദ്ധ്യം	ഇല്ല	ചെറിയ അളവിൽ	ധാരാളം
6. ദിവസേന അതിസാരം സംഭവിക്കുന്നത്	1-2 തവണ	3-4 തവണ	4 തവണയിൽ കൂടുതൽ
7. കുഞ്ഞിന്റെ ഭാരനഷ്ടം	ശരീരഭാരത്തിൽ വന്ന നഷ്ടം (<5%)	ശരീരഭാരത്തിൽ വന്ന നഷ്ടം (5-9%)	ശരീരഭാരത്തിൽ വന്ന നഷ്ടം (>9%)

ഭാഗം (4) : നിർജ്ജലീകരണാവസ്ഥാ നിർണ്ണയം

ലക്ഷണങ്ങൾ	നേരിയ തോതിൽ (1)	മിതമായ തോതിൽ (2)	കഠിനമായ തോതിൽ (3)
1. മാനസികാവസ്ഥ	ഊർജ്ജസ്വലത	തളർച്ച അസ്വസ്ഥത	അതിക്ഷീണം മാന്ദ്യം അബോധാവസ്ഥ
2. ദാഹം	സാധാരരീതി ചിലപ്പോൾ നിരസിക്കും	അതിയായ ദാഹം	വളരെക്കുറച്ച് അഥവാ കുടിക്കാൻ ബുദ്ധിമുട്ട്
3. ഹൃദയമിടിപ്പ്	സാധാരണഗതി (70-120 bpm)	കൂടുതൽ (121-150 bpm)	ഉയർന്ന ഹൃദയമിടിപ്പ് (>150)/ കുറഞ്ഞ ഹൃദയമിടിപ്പ് (<70)
4. നാഡീമിടിപ്പിന്റെ സ്വഭാവം	സാധാരണഗതി	ക്ഷീണിച്ച	സ്പർശിച്ച് അറിയാൻ പറ്റില്ല
5. ശ്വാസോച്ഛ്വാസം സാന്നിദ്ധ്യം	സാധാരണഗതി (22-25/മിനിട്ട്)	കൂടുതൽ (26-35/മിനിട്ട്)	വളരെക്കൂടുതൽ (>35/മിനിട്ട്)
6. കണ്ണുകൾ	സാധാരണഗതി	കുഴിഞ്ഞ്	വളരെക്കുഴിഞ്ഞ്
7. കണ്ണുനീർ	സാധാരണഗതി	കുറവ്	ഇല്ല
8. വായും നാക്കും	ഈർപ്പമുണ്ട്	ഉണങ്ങി	ഉണങ്ങിവരണ്ട്
9. തൊലിയുടെ മടക്ക്	പെട്ടെന്ന് സാധാരണ ഗതിയിൽ	2 സെക്കന്റിനുള്ളിൽ സാധാരണഗതി	2 സെക്കന്റിന് മേൽ
10 സൂക്ഷ്മ രക്തവാഹിനി നിറയൽ	സാധാരണഗതി (<2 സെക്കന്റ്)	കൂടുതൽ (2-5 സെക്കന്റ്)	വളരെക്കൂടുതൽ (>3 സെക്കന്റ്)
11 കൈകാലുകൾ	സാധാരണതാപം	തണുപ്പ്	തണുത്ത് മരവിച്ച്
12 മൂത്രത്തിന്റെ അളവ്	സാധാരണ നില (500-100 മില്ലി/ ദിവസം)	കുറവ് (100-499 മില്ലി/ ദിവസം)	വളരെക്കുറവ് (<100 മില്ലി/ ദിവസം)

കഷായം നൽകുന്നതിന്റെ സമയം	M	E	M	E	M	E	M	E
ടെസ്റ്റ്	പ്രീടെസ്റ്റ്		പോസ്റ്റ്ടെസ്റ്റ് I		പോസ്റ്റ്ടെസ്റ്റ് II		പോസ്റ്റ്ടെസ്റ്റ് III	
അതിസാര സ്കോർ								
നിർജ്ജലീകരണ സ്കോർ								

APPENDIX – IX

PROCEDURE

Preparation of Pomegranate skin decoction

- Take 50gms of fresh pomegranate skin.
- Soak in 800ml of water for one hour.
- Boil until a quarter of the volume remained (200 ml).
- Store this mixture in a clean dry bottle.

Administration

1.25gm (5ml) for 1-3yrs and 2gm(8ml) for 3-5yrs was administered twice daily for 4 days and response assessed by Diarrhoea and Dehydration Assessment Scale on Day 1, 2, 3 & 4.

APPENDIX – X

PHOTOS

C.B.M Homoeo Medical Trust Hospital

CBM Homoeo House (Kaleeckal Thekkethil) P.B. No: 3, P.O. Nooranad - 690504

e-mail : rajindiainternational@yahoo.co.in

Ref :

Date .....

Dr. Rajan P.D. (*Managing Director*)

Mob: 9447349575, 0479-2387917

Date: 30.10.2009

TO WHOMSOVER IT MAY CONCERN

This is to certify that No. 30083612, II year Msc Nursing student of Annai JKK Sampoorani Ammal College of Nursing, Komarapalayam under the Tamil Nadu Dr. MGR Medical University Chennai; has successfully completed her research study in this hospital from 05/10/2009 to 30/10/2009.

Thanking You,

Yours sincerely,

Dr. P. D. Rajan

Regd. Medical Practitioner

C.B.M. HOMOEO MEDICAL TRUST HOSPITAL
Pin. 690504
NOORANAD.

C.B.M Homoeo Medical Trust Hospital

CBM Homoeo House (Kaleeckal Thekkethil) P.B. No: 3, P.O. Nooranad - 690504

e-mail : rajindiainternational@yahoo.co.in

Ref :

Date .....

Dr. Rajan P.D. (*Managing Director*)

Mob: 9447349575, 0479-2387917

Date: 23.09.2009

To

The Dean
Annai JKK Sampoorani Ammal College of Nursing
Komarapalayam

Sub: Permission for conducting the research study

Sir,

I hereby granted permission to conduct the research in our institution to the No. 30083612, II year Msc Nursing student, who is undertaking the following study, "A Study to assess the effect of Pomegranate skin decoction for diarrhoea among children in selected hospital, Kerala".

Thanking You,

Yours sincerely,

C.B.M. HOMOEO MEDICAL TRUST HOSPITAL
Pin. 690504
NOORANAD.

Dr. P. D. Rajan
Regd. Medical Practitioner

ABSTRACT

A study to assess the effect of pomegranate skin decoction on diarrhoea among children in selected Hospital, Alappuzha, Kerala was under taken by 30083612 as a partial fulfillment of the requirement for the Degree of Master of Science in nursing at Annai JKK Sampoorani Ammal College of nursing , under the Tamilnadu Dr.MGR Medical University during the year 2008-2010.

The objectives of the study were; to assess diarrhoea and dehydration before and after administration of pomegranate skin decoction in experimental group, to compare mean difference in diarrhoea and dehydration among children in experimental and control group, to find the association between mean difference in diarrhoea, dehydration and selected factors among children in experimental group.

The research hypothesis formulated were ; H_1-There will be a significant difference in diarrhoea before and after administration of pomegranate skin decoction in experimental group, H_2- There will be a significant difference in dehydration before and after administration of pomegranate skin decoction in experimental group, H_3- There will be a significant difference in the mean difference in diarrhoea among children in experimental and control group, H_4- There will be a significant difference in the mean difference in dehydration among children in experimental and control group, H_5- There will be a significant association between the mean difference in diarrhoea and selected factors among children in experimental group, H_6- There will be a significant association between the mean difference in dehydration and selected factors among children in experimental group.

The investigator organized the review of literature under four section as follows, Studies related to diarrhoea, dehydration and management, Studies related to effect of pomegranate and Studies related to effect of pomegranate on diarrhoea and dehydration.

The conceptual framework for this study was based on Nursing Process model developed by ANA (1991) .The research design used was a quasi experimental design .Study was conducted among 40 children ,20 in experimental group and 20 in control group admitted with moderate diarrhoea and dehydration who were selected by purposive sampling technique in CBM Homeo Hospital, Alappuzha.

The tool developed and used for data collection was an Interview\Observation schedule .Reliability was established by interrater reliability. Pilot study was conducted among 8 children with moderate diarrhoea and dehydration in CBM Homeo Hospital, Alappuzha.

Main study was conducted in CBM Homeo Hospital, Alappuzha. Preparation of pomegranate skin decoction was explained to experimental group. Data obtained were edited, organized, analyzed by using SPSS (version 10) and interpreted by descriptive and inferential statistics. The findings revealed the effectiveness of pomegranate skin decoction.

The findings of the study showed that there was a significant ($p<0.05$) reduction in diarrhoea and dehydration after pomegranate skin decoction administration among children in experimental group. There was no significant association between mean difference in diarrhoea, dehydration and selected factors among children in experimental group. The conclusion of the study was that pomegranate skin decoction was an effective technique for reducing diarrhoea and dehydration among children.

The limitations, implications and recommendations were adequately spelt.